FEEDSTUFFS

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

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Public Relations Committee Formed To Serve AFMA

CHICAGO — Twelve public relations specialists from the feed industry have been appointed to an advisory committee of the American Feed Manufacturers Assn., announced I. S. Riggs, chairman of the AFMA board of directors and vice president of Quaker Oats Co., Chicago.

"Their counsel and guidance will be invaluable in AFMA's public relations efforts of service to its members, the feed industry and agriculture," Mr. Riggs said. "In view of the expanding scope of AFMA's public relations activities, it was deemed advisable to select specialists who spend either all or most of their time in public relations work for AFMA member companies.

Members of the committee are: Dr. J. L. Krider, Central Soya Co., Ft. Wayne (chairman); Bill Corwin, Southern States Cooperative, Richmond, Va.; Joe Ferris, Doughboy Industries, Inc., Minneapolis; Bayne Freeland, Quaker Oats Co.; Jack Lafferty, John W. Eshelman & Sons, Lancaster, Pa.; Bill Murphy, Eli Lilly & Co., Indianapolis; Harry Patrick, Chas. Pfizer & Co., Inc., Terre Haute, Ind.; Bill Pearce, Cargill, Inc., Minneapolis; Warren Ranney, Cooperative G.L.F. Exchange, Ithaca, N.Y.; George Soule, E. I. du Pont de Nemours, Wilmington, Del.; J. D. Sykes, Ralston Purina Co., St. Louis, and Eli Wiggins, Eastern States Farmers Exchange, West Springfield, Mass.

First meeting of the committee

(Turn to AFMA, page 97)

Northwest Retail Feed Convention Program Outlined

MINNEAPOLIS — Speakers from colleges and the feed industry will highlight the annual Northwest Retail Feed Assn. convention to be held Jan. 11-13 at the Pick-Nicollet Hotel here.

The program calls for a day of educational sessions Jan. 12 and a panel discussion on nutrition the following day. Also scheduled for the convention are committee meetings Jan. 11, the annual banquet Jan. 12, ladies entertainment, cash drawings and other features.

Members of the panel on nutrition, which is to appear at 9:30 a.m. Jan. 13, are Dr. Elton Johnson, Dr. Lester E. Hanson and Dr. William H. Petersen, University of Minnesota, poultry, swine and dairy scientists, respectively. Joining them on the panel will be Dr. R. O. Nesheim of The Quaker Oats Co.

Scheduled Jan. 12 are addresses by Dr. Ermond H. Hartmans, agricultural economist at the University of Minnesota; Dr. Glenn H. Nelson, New Richland, Minn., veterinarian who is currently president of the Minnesota State Veterinary Medical

(Turn to NORTHWEST, page 101)

FEEDSTUFFS *Features This Week*

NEW PLANT: New mill specializes in complete pelleted feeds for livestock. See **page 10.**

WAGE-HOUR LAW: The application of the Wage-Hour Law to employees of integrated poultry programs is outlined on **page 18.**

GOLDEN YEAR FEATURE: Highlights of the last 50 years in swine feeding and nutrition are outlined by Dr. Lester E. Hanson, University of Minnesota, on **page 30.**

AMINO ACIDS: The amino acid requirements of swine and poultry are the subject of this fifth article in a series on **page 46.**

INTEGRATION: Feed men's answers to a survey on vertical integration are discussed in the first of two articles. See **page 68.**

TURKEY FEEDING: Suggestions on feeding systems and feed formulations for turkeys being finished for market can be found on **page 78.**

— REGULAR FEATURES —

Joe Brooks	40	Feed Service Bulletin Board	84
Putting Research to Work	42	Worth Looking Into	86
Convention Calendar	60	Feed Markets in Detail	98

"New Frontiers" Can Solve Problems Of Broiler Industry, Speaker Says

LAUREL, DEL.—Opening new frontiers can solve the problems facing the broiler industry, according to George E. Coleman, Jr., Nichol's Poultry Farm, Exeter, N.H.

Mr. Coleman told the regional poultry meeting here recently, "We are being squeezed out of profit in all phases of our industry and there is good reason to believe that integration in itself cannot hold the line.

"We need a reasonable margin that will allow all segments of the poultry industry to operate with a reasonable return, comparable with investment in any other field, and an opportunity to lay up reasonable reserves to provide for the ever present need for change and a sound future, without going to the government for handouts."

The first place to look to solve the problem is the same old place, per capita consumption, Mr. Coleman said.

He said per capita consumption can be increased if the industry will do a better job on quality, flavor, grading and promotion of its product.

"The consumer can and will eat more chicken of top quality and he will pay more money for dependable quality broilers," he said. "Another 'frontier' which could be opened by the industry is the export market."

Price Outlook

Another speaker at the all-day session was Richard C. Larkin, poultry division of the Agricultural Marketing Service of the U.S. Department of Agriculture.

Speaking on the topic, "Can You Make a Dime in '59?", Mr. Larkin said it all "depends on what course of action the industry takes in the weeks ahead.

"Current and prospective broiler production, in relation to the expected demand, indicates a January-March national average price of about 16¢ as compared to an average of 20.5¢ during the same period a year ago," he said.

"This may come as a shock to the industry," Mr. Larkin continued, "and thereby help reduce production in the months following."

Lower production costs, increased demand and a halt to increased pro-

(Turn to BROILER INDUSTRY, page 97)

NETHERLANDS REPORTS ATROPHIC RHINITIS

AMSTERDAM, HOLLAND—An outbreak of atrophic rhinitis among Dutch hogs has necessitated the mandatory killing of over 15,000 hogs in the province of Limburg, it is reported. This respiratory disease is new to Holland, and the government is said to be taking severe measures to wipe it out.

Foxbilt Reports 47% Feed Sales Increase; New Mobile Division

DES MOINES—Foxbilt, Inc., Des Moines, has reported a 47% sales increase for its feed division during 1958 over 1957.

Edwin L. Fox, president of the company, also announced the establishment of a mobile mill division. The company has become exclusive sales representative for Melos Manufacturing Co., Des Moines, manufacturer of portable mills. Foxbilt personnel will handle all Melos sales throughout the U.S.

Foxbilt also operates the Ames In-Cross hybrid chicken division with breeding and research facilities at Roland, Iowa; and the Ames In-Cross swine division which leases meat-type breeding stock to midwest hog producers.

Sales of the Melos mobile mills will be handled by Foxbilt Feed personnel in 10 midwestern states and by Ames In-Cross personnel throughout the remainder of the U.S.

USDA Moves To Expedite Poultry Law

Assures Adequate Inspectors, Amends Blueprint Deadline

WASHINGTON—With the poultry processing industry in some cases confused and disgruntled about how the U.S. Department of Agriculture's compulsory inspection program would go into effect Jan. 1, USDA has taken action to get the plan into operation as smoothly as possible.

USDA action involves an accelerated hiring of "temporary" inspectors, thereby eliminating an expected shortage of inspectors, and changing the deadline date for approval of plant blueprints from Oct. 1 to Dec. 12. As a result of these two moves, the inspection operation has been reported to be in effect in the great majority of processing plants.

Before this action was taken, it appeared that the program would go into "limited" effect only, and that many processors without inspectors, or processors whose blueprints had

(Turn to INSPECTION, page 97)

Convention Planned By Indiana Grain, Feed Dealers Assn.

INDIANAPOLIS — While still incomplete, part of the program has been announced for the Jan. 18-20 convention of the Indiana Grain & Feed Dealers Assn., Inc., at the Claypool Hotel, Indianapolis.

Alvin E. Oliver, executive vice president of the Grain & Feed Dealers National Assn., has been scheduled to present a preview of 1959 legislation that may affect the feed industry.

L. L. Cunningham, president of the Business Institute of Milwaukee, Wis., will speak on salesmanship, and Dr. Morris Erdheim, director of tech-

(Turn to INDIANA, page 101)

Moorman Officials Cite Record Year

QUINCY, ILL. — Moorman Manufacturing Co., Quincy, reported recently that indications pointed to sales for 1958 that would top previous highs by almost 20%.

Company officials reported that with 2½ weeks to go in 1958, company sales were approximately $54 million—almost $10 million above the best previous year, 1954.

For the week ending Dec. 13, the company announced total billings of $1,707,000, which were $6,800 higher than the previous record week. Sales for the week which ended Dec. 6 had broken all previous records at the Quincy plant, which manufactures livestock feed supplements.

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Crop Production Trends

THE NATION'S HUGE CROP PRODUCTION during 1958 has caused a great deal of concern in many quarters because of the effects this build-up in supplies can have on farm commodity prices during the next several months. The concern is real, and feed men are among those who are having to reckon with this in making their future plans.

In the midst of this situation, some comments by L. H. Simerl, University of Illinois agricultural economist, present an interesting view of crop production trends. There seems to be a belief that crop production, like cancer cells, is running out of control. But this picture is hardly accurate.

"Take corn as an example: The 1958 corn crop is estimated at 3,786 million bushels, which is 11% more than in 1957 and a new record high. That sounds formidable—until we put it in perspective by comparing it with earlier record crops and with the growth of our nation.

"Grandpa produced a 3-billion-bushel crop more than 50 years ago. In 1906, production totaled 3,033 million bushels. In the 52 years since 1906, our population has grown by 108% while corn production has increased by only 25%. And remember that this production has been achieved with price support for all corn and practically no production control."

Prof. Simerl also notes that 1958's cotton production was exceeded way back in 1904 and that the oat crop of 1915 exceeded 1958 production of this crop. Wheat production jumped 53% in 1958 over 1957, but the 1957 crop was smaller than the one harvested in 1898. From that year to 1958, wheat output has increased 88% while population has swelled 140%.

SINCE 1920, TOTAL PRODUCTION of four feed grains has increased only 36%, while population has grown 63%. "The point," Prof. Simerl says, "is that crop production has not increased excessively. Surplus stocks have accumulated primarily because attempts to solve the 'farm problem' by legislation have restricted markets for our crops."

There is little doubt that whether production is defined as "excessive" or not, or whether current stocks are "surplus" in a real sense, many obstacles to orderly marketing and adjustment of supplies to suit consumer needs have resulted from unwise legislation. The problem remains one of permitting crops to be grown for markets and not for storage.

They Said It Couldn't Be Done!

SCENE I: Ernest reader, catching up on homework, comes across this item in Feedstuffs, Dec. 20:

KNOXVILLE, TENN.—A University of Tennessee study among 3,611 families in 69 counties of the state shows that professional groups of people eat more broiler meat than any other group. More specifically, the study showed that such professional people as teachers, medical personnel, lawyers and public servants ate 28½ lb. of broiler meat each year. Miners were found to eat 20 lb. each, the least of any group, while people in agriculture—farmers, foresters and fishermen—each ate an average of 21 lb. of broiler meat per year.

SCENE II: Same setting. Reader glances up at television commercial. On screen, somewnat grimy individual is climbing out of hole in ground. He puts down shovel, removes hard hat and reaches for lunch bucket.

Announcer: Say, that's quite a hole you have there. It's apparent that you are very interested in digging. Have you been doing this sort of work long?

Digger: Well, yes. I spend several hours a day at it. But I sure get hungry. (Reaches into lunch pail and takes out a parcel of food.)

Announcer: Then you are a miner and, I agree, this sort of thing must give you a terrific appetite. By the way, what is that you're eating?

Digger: No, I'm not a miner. I'm an atomic scientist at Oak Ridge. I'm eating chicken. It has a hungry man's taste and a thinking man's nutritional value.

Announcer: Well, that is surprising. Your occupation, I mean. I understand about the chicken. It does have a hungry man's taste and a thinking man's nutritional value. Why do you dig holes?

Digger: Well, out at the research laboratory—I'm a Ph.D. specializing in chain reactions—I get kind of worried that something may go kerplooie. I like to think I have a practical hobby. It's relaxing and comforting.

Announcer: Do you think everyone should dig for a hobby?

Digger: No. I believe everyone should find relaxation in whatever way suits him best. Well, back to the shaft. (Steps over pile of chicken bones, starts to descend and pauses with just head showing as announcer fires last question.)

Announcer: Just one more question, sir. About your favorite food. Would you say everyone should eat chicken?

Digger (disappearing, with inscrutable smile on face): No. I say, everyone should think for himself.

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

The holidays failed to make much of a dent in the booming feed business being enjoyed by most areas of the country. Mills were running overtime and Saturdays to make up a full week and meet deliveries. The Southeast part of the country, however, reported slower sales. Prices for the coming week will be unchanged to up slightly. The ingredients market took some mild downturns during the week, and feed mill representatives are expecting continued good price ratios and feed business during the coming weeks, although a slight lull is anticipated. (Ingredient prices in detail on pages 98-100.)

Northwest

December was another record or near-record month for mills whose representatives reported this week. The month closed a calendar year which has also been outstanding.

Despite the holidays, the week ending Dec. 31 was rated "excellent" by the representatives. Some increases in demand were reported, but it is believed that January may slack off somewhat. Sales contests closing at the end of the year were credited with some of the increases and it was thought that buying may drop as the new year opens.

Mill representatives said they think the drop may be very slight, however. If ratios continue to be reasonably good, they foresee continued strong demand.

Egg feed buying showed some improvement during the week after a rather long period of draggy demand. Beef, dairy and hog feeds continued to be sales leaders.

Prices for the coming week were scheduled to be unchanged to up very slightly. The representtaives also expect ingredients to drop in January, making feed prices more attractive to the feeders.

Mills were running at three shifts or two long shifts during the week. Saturday operation was necessary in most cases to meet demand and backlogs were good enough to promise a strong start for the new year.

Southwest

Although the New Year's holiday cut into the movement of formula feed in the Southwest to a degree, generally business seems to be booming along at a good pace. Practically all mills were down New York's Day, but some will run Saturday to make up the lost time and will wind up with a full five days of production. The average probably will be 4 to 4½ days, normal shifts. Backlogs going into next week are substantial in most cases.

Year-end sales drives are credited with contributing to the good volume of some mills. Another factor believed to have had an influence on keeping December business so good is tied up with the income tax situation. Farmers have enjoyed a good income year and many have stocked up with feed to get as much operating expense into 1958 as possible.

Support for this theory is found in the fact that some mills find no particular rush to lay in feed after Jan. 1 as has been common in previous years. Unexpected high prices may also be having an effect in holding back a great rush of new year orders from dealers and farmers hoping for a price break early in January. Despite these factors, business is good.

Cattle and hog feeds are moving the best, although general line dealer business is also considered good. Price lists are expected to be unchanged to up as much as $2 ton on some high protein items. Millfeed has weakened and vegetable protein has turned downward. But animal protein has advanced sharply.

Northeast

Dairy feed sales gained a little as colder weather forced farmers to step up rations to maintain their cattles' body weight and temperature.

Egg mashes continued to do well but broiler feeds, as well as the broiler market, remained in the doldrums. Some improvement had been forecast for the broiler market after the first of the year but the large amount of chicks put in during December for the January-February trade may hold prices down or even depress the market.

The ingredient market was pretty well mixed during the week.

Corn was off 1½ to 2¢ and oats were down 1¢, but barley and feed wheat were steady. Milo held unchanged.

Soybean oil meal (44%) was fairly strong and up 50¢ to $1 and 50% meal gained $1. Linseed oil meal was quoted at a high price and was practically unobtainable. Cottonseed oil meal moved in sympathy with soybeans and gluten meal held steady.

Western buying continued to prop meat scraps and prices advanced another $2.50. Fish meal was just steady. Some imported fish meal is due to arrive on the East Coast

(Turn to MARKETS, page 102)

The Selling Advantage To Help You Make a $100.00 Sale at Every Silo

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FORAGE FLAVOR PRESERVATIVE

Count the silos in your area and discover the profit potential in this $62,000,000 market.

Only SILO-JOY adds fresh sweet pasture taste and aroma to all forages. It stops silage stink, increases palatability and eliminates waste—livestock clean up every stem. In field tests cows preferred SILO-JOY silage to fresh cut alfalfa-brome. And laboratory tests prove SILO-JOY helps preserve vital nutrients (especially Vitamin A and E). It's free-flowing, easy to use and low cost—as little as 1 lb. per ton of silage.

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IF YOU QUALIFY AS A MANUFACTURER we will supply you with SILO-JOY concentrate. You can easily produce your own distinctive product and combine the name SILO-JOY *with your brand name.*

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- A dairyman's own story presented with facts on herd production after feeding silage flavored with SILO-JOY.
- Eye-catching SILO-JOY user poster that uses reference selling to help make selling a little easier. *Imprinted with your brand name.*
- Local newspaper mats, radio spots, classified ads.
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Storage Keeps Pace with Production; 8.4 Billion Bu. Stored in 1958

WASHINGTON—Increases in commercial and on-farm storage capacity kept pace with record-breaking crop production in 1958, as the more than 8.4 billion bushels grains and oilseeds produced during the year were put under cover during the summer and fall without serious storage difficulties, the U.S. Department of Agriculture has reported.

The immensity of the storage job carried out by warehousemen and farmers is indicated even more clearly by the fact that a record carryover of grains was already on hand when 1958 crops were harvested, USDA pointed out. For the eight-crop grain and oilseed group (wheat, corn, barley, oats, rye, grain sorghums, soybeans and flaxseed), the total carryover was nearly 3.2 billion bushels—almost 400 million bushels above the previous record in 1957.

Less Storage Problems

In spite of these tremendous demands for storage in 1958, the harvest was disrupted less by storage problems than in other recent years, USDA said. This was due to the big increases in both commercial and farm storage in 1958. It is estimated that around 600 million bushels of new commercial space was made available for the first time during the year. While definite information on the increase in total farm storage is not available, it is obvious that it was large. Under the USDA farm storage facility loan program alone, about 10,000 farmers received loans to increase storage by more than 57 million bushels through October.

Even though total grain supplies were at record levels, the Commodity Credit Corp. did not have to resort to expansion of its own emergency facilities during 1958 in order to store its inventory stocks of grain taken over under price support programs. For the second consecutive year, it was not necessary to add to the 987 million bushels capacity already available in bin-type storage structures. And it was necessary to store only about 50 million bushels CCC-owned grain in idle ships of the Maritime Administration, as compared with as much as 90 million bushels in some past years.

USDA Takes Steps

In addition to direct efforts by farmers and the storage industry, USDA itself took steps to help meet the situation during the year. It shifted about 250 million bushels CCC-owned grain to new locations, to help relieve storage-tight areas and put stocks in position to fill available outlets. It also helped pin-point areas of probable storage shortages as an aid to industry in making sound decisions on practical expansion, and it assisted farmers in the financing and construction of adequate farm storage space.

While reporting on the successful storage operations in 1958, USDA officials at the same time pointed out that possible storage needs loom large for the year ahead. The record 1958 production is expected to result in a total grain and oilseeds carryover of more than 4.4 billion bushels going into 1959 harvests. This would be about 1.2 billion bushels more than the 1958 carryover. Even with normal production in 1959, storage needs next year would be increased substantially, calling for a comparable increase in storage capacity.

USDA will confer regularly during the weeks ahead with advisory committees and other representatives of farmers and the storage industry, in order to anticipate 1959 storage needs as fully as possible. It will continue to assist the storage industry in locating areas where more storage may be needed. It will encourage farmers to expand their own on-farm storage, when necessary using the farm facility loan program which has been extended indefinitely. And it will continue to shift and reconcentrate its own grain stocks to the extent possible in helping relieve tight storage areas.

Correction

A news item on page 4 of Feedstuffs for Dec. 27 carrying the headline "Kansas May Get New Feed Law" stated that a bill will be introduced in the 1959 Missouri Legislature to establish a new Missouri feed law. The headline was wrong; the item was right. The headline should have read, "Missouri May Get New Feed Law."

S. M. Lien, Sr., Retires From Northern Supply

AMERY, WIS.—S. M. Lien, Sr., an officer of Northern Supply Co., Amery, for 36 years, retired Jan. 1 after 42 years with the feed firm. He joined the company as a stenographer-bookkeeper in 1916.

Named secretary-treasurer in 1923, Mr. Lien held that post until 1946 when he was named president. He was president until 1957, when he again took over as secretary-treasurer until his retirement. His son, Sam Lien, Jr., succeeds him as secretary-treasurer.

Mr. Lien, Sr., has been active in feed industry activities, and he is a past vice president of the Northwest Feed Manufacturers Assn. He saw Northern Supply grow almost from its beginnings. The firm, which was founded in 1898, has a plant in Amery and 11 retail outlets.

"I thought I'd retire before I got too old to enjoy it," he said. "The only plan for the future I have right now is to spend a few months in Arizona this winter."

2 Animal Nutritionists Receive Vitamin Grants

NEW YORK—Two scientists working on nutritional studies of importance to the feed industry were among nine receiving grants recently from the National Vitamin Foundation.

A non-profit organization which subsidizes basic research in nutrition, the foundation granted $6,600 to Dr. Eldon G. Hill, assistant professor of animal husbandry, the Hormel Institute, University of Minnesota, Austin, Minn., for continuation of studies on the role of vitamin E in the nutrition of the baby pig and its possible interrelationships with essential fatty acids.

Also receiving a grant was Dr. George Wolf, associate professor of animal nutrition, Radiocarbon Laboratory, University of Illinois, who was given $6,752 for one year for continuation of studies on the metabolism of radioactive vitamin A and the function of vitamin A.

Grants are made semi-annually by the foundation, which is supported by producers and distributors of vitamins. Grants approved in the last announcement totaled more than $66,000 to nine recipients.

Thomas E. Staley Wed

KANSAS CITY — Thomas E. Staley, president of the Staley Milling Co., and Mrs. Anne Thomson Langston, Houston, widow of Ernest Langston, who had been an insurance executive, were married Dec. 24 at the Country Club Congregational Church here. The couple will be at home in Kansas City after Feb. 15.

Erwin C. Wascher

Honeggers' Promotes Erwin C. Wascher

FAIRBURY, ILL. — E. F. Dickey, president and general manager of Honeggers' & Co., Inc., Fairbury, has announced the appointment of Erwin C. Wascher as vice president of operations for the company's feed, farm buildings and equipment divisions.

Mr. Wascher, who has been associated with Honeggers for 13 years, will be responsible for the day-to-day operations of the company and for the execution of plans, policies and programs as may be developed by the board of directors, the executive committee or the president, according to a company announcement.

A graduate of Chillicothe (Mo.) Business College, he started to work as assistant office manager in Honeggers' feed and milling division in late 1945. Later the same year he became office manager, and in the spring of 1947 he was promoted to assistant manager of the feed and milling division.

In 1949 Mr. Wascher assumed responsibilities for all duties except sales and advertising. Three years later he was elected vice president, and was named director of procurement and production. In 1955 he was elected to the board of directors and executive committee.

Corn Products Votes Quarterly Dividend

NEW YORK—The board of directors of Corn Products Co., New York, recently voted a quarterly dividend of 50¢ a common share.

Company officials pointed out that this $2 annual rate represents an increase of 20¢ a share over the previous rate. The dividend is payable Jan. 26, 1959, to stockholders of record at the close of business Jan. 2, 1959.

This is the first dividend declared by the company since it was formed by the merger of Corn Products Refining Co. and Best Foods, Inc., two and a half months ago. It is the amount of dividend that was projected at the time of the merger.

"The up-turn in our national economy has increased Corn Products' industrial product sales. With abundant supplies of raw materials, the outlook for 1959 is for still greater expansion of sales and earnings both here and abroad," said William T. Brady, company president.

(Wirthmore Feeds, Inc., is a subsidiary of Corn Products.)

TO INCREASE CAPACITY

McPHERSON, KANSAS—The Commodity Storage Co., McPherson, has announced plans to increase its grain storage capacity here by constructing a new 200,000-bu. concrete storage building and a million-bushel steel storage unit. The two will increase the company's capacity to 2.5 million bushels.

Cargill Plans Soybean Processing Plant at Norfolk, Virginia

MINNEAPOLIS—Plans for construction of a soybean processing plant at Norfolk, Va., have been announced by Cargill, Inc., Minneapolis.

Fred M. Seed, vice president in charge of the firm's vegetable oil division, said the company also plans construction or purchase of "several" procurement-station grain elevators at locations still undetermined in Virginia, Maryland, Delaware and North and South Carolina.

The new extraction plant, to have an initial capacity of 7 million bushels annually, will be built adjacent to a present 2,250,000-bu. Cargill export grain elevator on the Norfolk oceanfront.

The official's statement, which pointed out that soybeans are an increasingly important part of the cash grain production of the five states, said the network of new installations "will provide soybean producers with significantly improved local markets." He pointed out that at present the area is largely dependent on overseas export to provide commercial outlets.

The processing plant will serve the growing demand for soybean meal in important poultry and livestock areas near the eastern shore, officials said. It will also provide soybean oil to edible-oil users in the eastern states and will export oil.

"Plans call for completion of the plant by Oct. 1, 1959, to handle new-crop soybeans. Details of construction, contracts to be let, etc., are now being determined and will be made public as quickly as possible," it was noted in the announcement.

California Group Builds Feed Plant

SAN FRANCISCO—Following the completion of a processing plant by the Poultry Producers of Central California, the Poultry Producers Association of Southern California has announced construction of a $500,000 feed plant in Riverside.

The new plant, currently under construction, will feature a bulk batch mixing system to be fed by a number of live bottom interior bins. Included will be facilities for pelleting feed products, equipment for grinding and dry cracking grain, a pneumatic bulk unloading system, which will receive soft stocks from rail or trucks and a second conventional mechanical receiving system handling grain from trucks.

Plans include the construction of 14 exterior storage tanks with a capacity of 1,250 tons each. A bulk transfer station with a traveling hopper scale will be used to store finished feeds for bulk loading.

The total capacity of the plant is expected to be 200 tons of feed per eight hour day. The buildings are being constructed by the Pacific Milstalation, Inc., San Francisco, and equipment is being installed by Reid-Strutt Co., Inc., also of San Francisco.

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Futures Trading In Soybean Meal Increases in 1958

WASHINGTON — Active demand for livestock feed has stimulated sharply-increased futures trading and hedging in soybean oil meal, the U.S. Department of Agriculture reports.

Rodger R. Kauffman, Commodity Exchange Authority administrator, said soybean oil meal had the largest volume increase during the past year among the 21 commodities under CEA regulation. The commodity had a record 10.6 million tons, 82% more than in 1957.

"For protection against price risks, merchandisers and processors have hedged actively in futures, particularly during the movement of 1958 crops," Mr. Kauffman said.

For futures trading generally during the year, however, there was a mixed trend. Increases were reported in eggs as well as soybean meal and some other commodities, and decreases were reported for most grains and fats and oils, the report said.

Mr. Kauffman said the trading volume in wheat, corn and oats was little changed from 1957, but that decreased activity in soybean futures on the Chicago Board of Trade reduced the overall volume for the grain markets from 12.9 billion bushels in 1957 to an estimated 11.5 billion in 1958.

Wheat futures trading at an estimated 4.8 billion bushels was about 4% less, and soybean trading at 3.1 billion was about 30% smaller. Corn futures trading, amounting to 2.1 billion bushels, was 6% larger than in 1957, while the volume in oats was about unchanged.

Mr. Kauffman said trading in cottonseed oil on the New York Produce Exchange, and in soybean oil on the Chicago Board of Trade, slackened somewhat from the high level of 1956 and 1957. The cottonseed oil futures volume for 1958 was estimated at 3.5 billion pounds and soybean oil at 9.4 billion pounds, both about 11% below the previous year. Lard futures trading on the Chicago Board of Trade, amounting to about 900 million pounds, was less than half that of 1957.

Egg futures trading on the Chicago Mercantile Exchange was a near-record 392,000 carlots, 9% more than 1957.

"Hedging in wheat futures, now past its seasonal peak, did not reach the high levels of 1956 and 1957, but hedging in corn and oats recently has been above a year earlier," Mr. Kauffman said. "In soybeans it has been at the highest level in CEA records. The hedging utilization of the cottonseed oil, soybean oil and soybean meal markets increased almost steadily in the last half of 1958.

"In most futures markets, the year in general has been one of orderly trading, good compliance with speculative limits enforced by the CEA, and with no losses to commodity customers through failure of brokers under CEA regulation to properly account for customers' funds," he said.

New Mexico A&M Has Name Changed

STATE COLLEGE, N.M. — New Mexico A&M College has had its name changed to New Mexico State University of Agriculture, Engineering and Science.

To be known as New Mexico State University in general usage, the college received its new name by action of the board of regents in a recent meeting. In announcing the action, the board said the name change represents "progress based on the facts."

Regents are also discussing an appropriate name change for "State College," the designation for several years of the university's post office and the community surrounding it.

Grant Made for Study Of Turkey Ailment

ST. PAUL.—The University of Minnesota has been awarded a $76,900, five-year grant from the National Heart Institute, U.S. Public Health Service, for research on a blood vessel problem in turkeys.

The research will be conducted jointly by staff members in the poultry husbandry department and the college of veterinary medicine.

The condition to be studied is known as dissecting aneurysm—internal bleeding due to a rupture of the posterior aorta. Turkey producers have been troubled frequently with this problem in their flocks in recent years, according to Dr. Paul Waibel poultry husbandry department project leader. Cause of this disease is not known, but a similar condition also occurs occasionally in humans.

The grant will be made available at the rate of $15,380 a year. Staff members doing the research will be Dr. Waibel; Dr. Jay H. Sautter, professor of veterinary pathology; Dr. Benjamin S. Pomeroy, professor of veterinary bacteriology and public health; Dr. Irvin E. Liener, associate professor of agricultural biochemistry, and Prof. Ray E. Burger, assistant professor of poultry husbandry.

Pork Purchase Program Planned

WASHINGTON—The U.S. Department of Agriculture has announced that offers have been requested to supply approximately 10 million pounds of frozen ground pork for schools participating in the National School Lunch Program.

Purchases will be made with funds transferred by Congress from Section 32 for use under the National School Lunch Act.

The department is purchasing this frozen ground pork on a trial basis. Other meat items have been made available to schools in past years under provisions of Section 32 and the School Lunch Act. Offers will be considered only from vendors operating under federal inspection in order that products purchased may be shipped in interstate commerce.

Oilseed Meal Futures Show Lower Trend

MEMPHIS — Oilseed meal futures ended lower Dec. 29 on the Memphis Board of Trade, compared with the previous week.

Early in the period, brisk cash oil meal demand sent futures prices upward. Later, however, the demand lessened and, coupled with futures profit-taking, the boards dropped.

Unrestricted soybean oil meal closed Dec. 29 unchanged to $1.60 ton lower, Eastern Trunk Line soybean oil meal $1 to $1.50 lower, bulk solvent cottonseed oil meal unchanged to $1.50 lower, and sacked old process cottonseed oil meal $1 to $2.50 lower.

Trading for the period, which was cut short by Christmas and Friday holidays, amounted to 2,800 tons of unrestricted soybean oil meal, 1,500 tons of Eastern Trunk Line soybean oil meal, and 700 tons of bulk solvent cottonseed oil meal.

Swine Specialist Retires

ST. PAUL, MINN. — Henry G. Zavoral, an extension livestock specialist for the University of Minnesota for the past 37 years, has announced his retirement. Well known as a promoter of the meat-type hog, Mr. Zavoral has written a number of publications on hog raising and he also played a dominant role in establishing the first boar testing station in Minnesota.

RECIPE CONTEST—Each of the items in this picture (except the girl) represents a category of a recipe contest that will be sponsored starting Feb. 1 for farm and ranch homemakers by the Larro Feeds division of General Mills, Inc., Minneapolis. The categories are chicken, turkey, dairy products, pork, eggs, beef and lamb. Contest prizes will total $17,000. First place winners in each of the seven categories will receive $1,000 in cash plus free trips for two to Minneapolis July 23-24 to attend the city's summer festival, the Aquatennial. The winners will also meet Sharon Bigalke (left), Aquatennial queen.

General Mills Plans Recipe Contest for Farm Homemakers

MINNEAPOLIS—A recipe contest for farm and ranch homemakers will be sponsored by the Larro Feeds division of General Mills, Inc., Minneapolis, for two months starting Feb. 1.

The national contest, open only to those owning or living on a farm or ranch, will offer $17,000 in prizes for the best recipes prepared from farm products in seven categories: chicken, turkey, dairy products, pork, eggs, beef and lamb.

There will be a $1,000 first prize for the winning recipe in each of the seven categories, plus a two-day, all-expenses-paid trip for two to Minneapolis July 23-24 to visit General Mills' Betty Crocker kitchens and attend the city's summer festival, the Aquatennial.

"General Mills and Betty Crocker feel farm homemakers everywhere have recipes every other American homemaker ought to know about," explained D. H. McVey, vice president and ganeral manager of the feeds division. "This contest will give to Betty Crocker some fine examples of farm product-farm kitchen cookery to share with millions of other homemakers throughout the country.

"At the same time we hope it will serve as a much deserved salute to the farm wife, and emphasize to rural people the part that processors of farm products are playing to help the farmer sell a lot of the things he produces."

In addition to the seven $1,000 first prizes, there will be cash awards of $500, $250 and $100 for the recipes judged second, third and fourth best in each of the categories. Seven hundred Betty Crocker Picture Cookbooks will be awarded for the next best 100 recipes in each category.

Everyone who enters will receive a citation from Betty Crocker recognizing her participation in the campaign to help promote the products of the American farm.

Entry blanks will be available at most feed dealers.

BROILER OUTPUT BIG IN NORTH ALABAMA

AUBURN, ALA.—North Alabama is second only to north Georgia in the number of broilers produced per square mile, according to S. L. Davis, Alabama Polytechnic Institute extension poultryman. Mr. Davis said Marshall County, Alabama, is in the center of a section that produced over 100 million broilers last year. The broilers brought a revenue of $60 million to producers of the area, which covers only one fourth of the state. The entire producing area is within a 75-mile radius of Marshall (not including any of Georgia or Tennessee). Besides producing the second largest number of broilers in the U.S., the 17-county area is the home of 77% of all broilers raised in Alabama, Mr. Davis said. He said Cullman County is first in broiler population in the state, with over 20 million broilers last year.

USDA Committee Cites Dairy Program Needs

WASHINGTON—Faster processing of data collected under the National Cooperative Dairy Herd Improvement and Sire-Proving Program (to show the genetic value of dairy sires) was advised by the U.S. Department of Agriculture's dairy research and marketing advisory committee at its annual meeting here recently.

The use of up-to-date electronic tape equipment would improve the statistical reliability of DHIA proved sire records, the committee said.

After reviewing research on mastitis, the committee recommended that veterinarians and extension workers give greater emphasis to information already gained from studies on better herd management and sanitation practices. Another recommendation was to expand research in order to obtain more basic knowledge of cattle diseases.

Committee members noted a need for improved dairy statistics, particularly for more comprehensive figures on milk production and utilization, on the consumption of milk and milk products, and improved monthly reporting of fluid milk and cream prices.

They also stressed the importance of studying the factors affecting animal consumption of feed and forages, and further development of methods of controlling flies, grubs, ticks, and lice.

Highest priority in the area of dairy products utilization was given to continuing research aimed at developing a commercially acceptable dry whole milk and improved butter and butterfat products.

Research studies on the role of fat and fatty acids in human nutrition and on the factors affecting human needs for protein and amino acids where listed as important.

Clarence B. Palmer, dairy farmer from Old Monroe, Mo., was elected chairman for two years. Truman Torgerson, general manager, Lake to Lake Dairy Cooperative, Manitowoc, Wis., was named vice chairman for a similar term. Dr. Arnold H. Johnson, research director, National Dairy Products Corp., Oakdale, L.I., N. Y., outgoing chairman, presided.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
October 25	1,056	419	589	646	96	557	1,686	1,566
November 1	1,033	416	768	707	127	535	1,813	1,570
November 8	1,094	470	814	795	180	655	1,293	1,927
November 15	1,099	382	825	797	173	654	1,293	1,871
November 22	1,075	560	818	797	174	676	1,580	1,746
November 29	1,015	584	857	861	127	736	1,605	1,551
December 6	1,042	522	856	870	143	656	1,645	1,653
December 13	1,125	567	953	943	163	696	1,598	1,743
December 20	1,142	560	911	819	155	722	1,624	1,998
December 27	1,147	601	714	743	142	665	1,692	1,852

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
October 25	834	485	2,229	315	5,034	180	2,285	1,613
November 1	894	571	2,307	297	5,121	213	2,496	1,668
November 8	796	611	2,416	327	5,095	185	2,654	1,654
November 15	878	574	2,294	364	5,016	201	2,648	1,727
November 22	941	468	2,359	369	5,196	192	2,685	1,796
November 29	1,008	481	2,444	381	5,320	245	2,650	1,830
December 6	1,006	506	2,439	347	5,388	249	2,628	1,903
December 13	988	490	2,475	342	5,255	237	2,773	1,972
December 20	1,076	511	2,480	361	5,734	215	2,863	2,000
December 27	1,090	562	2,081	331	5,404	211	2,366	1,946

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1958	1957
October 25	2,475	411	1,963	281	118	773	25,611	23,413
November 1	2,465	357	2,143	298	140	819	26,758	23,058
November 8	2,308	367	2,158	236	161	836	27,032	24,205
November 15	2,463	394	2,249	273	164	812	27,171	24,456
November 22	2,550	383	2,321	289	168	861	28,004	24,601
November 29	2,723	446	2,302	270	138	779	28,353	24,462
December 6	2,921	457	2,165	308	219	955	28,878	24,828
December 13	2,999	506	2,211	259	254	878	29,427	25,320
December 20	3,046	449	2,126	298	242	789	30,121	25,668
December 27	3,122	398	2,105	258	238	861	28,529	25,293

Ontario Agricultural College to Sponsor School for Poultrymen

GUELPH, ONTARIO—A three-day school for the poultry industry will be sponsored Jan. 20-22 by the Ontario Agricultural College at Guelph.

The program on Jan. 20 will deal with hatchery and supply flocks; the second day will be devoted to equipment, management and disease control, and the third-day program will concern poultry nutrition and feeding methods. The program each day will begin at 9:30 a.m. and conclude at 4 p.m. (All speakers listed are from OAC unless otherwise indicated.)

Addresses during the session on nutrition and feeding methods Jan. 22 include: "Phosphorus in Chick and Broiler Nutrition," by J. D. Summers, department of poultry husbandry; "Phosphorus Requirements of Laying Hens," by Dr. S. J. Slinger, department of poultry husbandry; "The Current Status of Antibiotics in Poultry Feeds," by W. B. Scandrett, department of bacteriology; "Recent Studies on Trace Minerals in Poultry Feeds," by Dr. H. D. Branion, department of animal nutrition; "Restricted Feeding of Laying Stock," by Dr. J. R. Aitken, poultry division, Central Experimental Farm, Canada Department of Agriculture, and "The Relationship of Feed and Strain in the Finishing of Turkey Broilers," by Dr. Slinger.

Speeches scheduled for the equipment, management and disease control session are: "Infectious Hepatitis and Coccidiosis," by Dr. M. C. Connell, department of poultry pathology; "Windowless Poultry Houses and the Use of Lighting," by Prof. J. P. Walker, department of poultry husbandry; "Medication — Pro and Con — for Poultry," by Dr. Julius Frank, health of animals division, Production Service, Canada Department of Agriculture; "Recent Disease Problems in Ontario Flocks," by Dr. A. E. Ferguson, department of poultry pathology; "OSC Results with Litter, Wire Floors and Cages," by Prof. J. P. Walker, department of poultry husbandry, and a panel discussion on "The Feed Serviceman's View of Poultry Management," with D. V. Slinger, United Cooperatives of Ontario, as chairman.

During the program on hatchery and supply flocks talks will include: "Vaccination Program for Supply Flocks," by Dr. A. E. Ferguson, department of poultry pathology; "Incubator and Hatchery Sanitation," by Prof. M. L. Wright, department of bacteriology; "OAC Tests of Egg and Meat Strains and Crosses," by Dr. F. N. Jerome, department of poultry husbandry; "Costs and Other Factors in Producing Hatching Eggs Compared with Market Eggs," by E. C. Hunt, department of poultry husbandry; "The Significance of Random Sample Test Results at Ottawa and Elsewhere," by M. S. Mitchell, Poultry Production Service, Canada Department of Agriculture; and a panel discussion on "The Started Pullet Business," with Prof. J. H. Pettit, department of poultry husbandry, as chairman.

There is no tuition fee for the school.

Named to Posts in Ag Relations Council

CHICAGO — R. L. Kathe, public relations director of the American Feed Manufacturers Assn., Chicago, and Kenneth Hinshaw, director of information for Eastern States Farmers Exchange, West Springfield, Mass., have been elected to posts in Agricultural Relations Council.

ARC is the national professional society for public relations men in agriculture. The election took place in Chicago recently at the council's annual meeting. Mr. Kathe was elected vice president and Mr. Hinshaw was named to the board of trustees. National president is Vernon Vine, director of editorial relations, Farm Journal Magazine, Philadelphia.

Bill Corwin, director of information, Southern States Cooperative, Richmond, Va., will continue in office as a trustee. Other ARC trustees include public relations men from the National Plant Food Council, the U.S. Chamber of Commerce, the National Grange and Kroger Co.

ARC was organized for the exchange of experiences and ideas in agricultural public relations. Included in the membership are approximately 90 men employed by agricultural businesses and industries, trade associations and farm organizations.

1959 Will Be Year of Buoyant Business, Economic Progress, Mr. Bullis States

EDITOR'S NOTE: Harry A. Bullis is retiring Jan. 1 as chairman of the board of General Mills, Inc. His annual custom at this time has been to take a look at the year ahead and to predict what is in store for the nation's business activity. The text of his predictions for 1959 for the nation's business and the food industry follow. After his retirement Mr. Bullis plans to devote a large part of his time to the furtherance of the International Development Advisory Board of which he was recently appointed chairman by President Eisenhower.

v v

Since the economic tide turned eight or nine months ago, there has been marked upward progress in business activity. The annual rate of Gross National Production, which dropped nearly $20 billion between the third quarter of 1957 and the first quarter of 1958, had recovered over $13 billion of the decline in the third quarter. A further gain of $10 billion, on an annual basis, in the fourth quarter of 1958 will bring a new high in economic activity.

The recent decline has demonstrated the stability of our economy. While total production declined by $20 billion on an annual basis, consumption declined by only $2 billion. It was the stability of personal incomes which permitted personal consumption expenditures to remain at a high level. Thus it was possible for business to liquidate excess inventories at a rapid rate, with the result that the recession was short lived. The stabilizing of consumption is an economic factor of utmost importance.

Although we have been recovering rapidly from the decline in production, we have not completely recovered in the area of unemployment. That is because our productivity has increased, so that we are producing the higher output with the use of something less than all our labor force. To bring unemployment down to a normal basis, we shall need to increase production still higher in 1959.

Contined Expansion Seen

I believe that there will be continued economic expansion in 1959 and that the Gross National Product for the year will be between $465 and $470 billion. I expect to see the total national output of goods and services reach an annual rate of $475 billion by the end of 1959.

What will give this extra thrust to total production?

An important factor will be the remaining upward pressure of the $7 billion of increased expenditures approved by the last Congress. Not much of the upward force from this spending program has as yet been in evidence. The remainder, and by far the largest part, will be spent during the coming year.

Another important factor is that the American people have held their debts almost constant while total personal income has moved $8 billion a year above the previous high record in August, 1957. Clearly the American people can afford to spend more, and when they decide to do so production will increase to satisfy the demand.

With corporate profits increasing and returning to high levels in 1959, business will be prepared financially to enlarge plans for capital investment in new plant and equipment. That is the way we raise the nation's productivity. It is also the best way for us to compete in the economic race with Soviet Russia.

I believe there is a good chance that the marked forward movement in our economy will produce tax revenues sufficient to bring the federal budget close to a balance and reduce the threat of inflation from deficit financing.

While there are many uncertainties, not the least of which is the foreign situation, it is my conviction that 1959 will be a year of buoyant business and economic progress. I am even more optimistic for the decade of the 1960's.

• • •

Liberal Share Seen

The food industry will share liberally in the economic upturn which is under way and which will extend into 1959 and future years.

For many years about one quarter of all personal consumption expenditures has gone for food. I believe that proportion will continue in the future. As increasing industrial activity brings higher incomes to more people, more money will be spent for food.

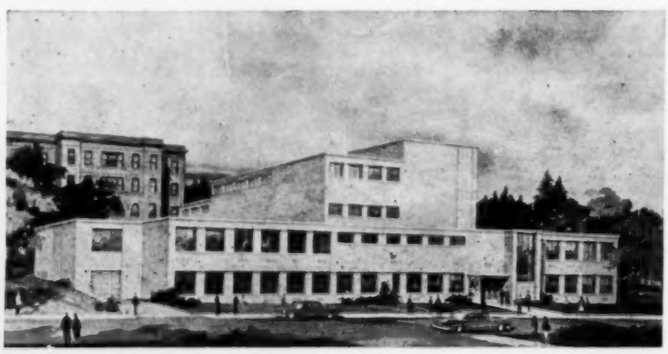
According to the consumer price index, food prices have declined a little during the past few months. Food supplies of all kinds are plentiful and prices should either decline a little more or remain stable.

Population is growing at a rate of 1.8% annually. That means nearly 3 million more people will need food, shelter and clothing in 1959, alone. The Census Bureau estimates that our population will be 193 million in just seven years—18 million up from our present population of 175 million. By 1975 our population will be around 228 million.

The food industry must grow in order to take care of the population increase. It must increase even more to keep pace with the desire of the American people to upgrade their living standards, including their diets.

Such growth does not take place spontaneously. It comes through research (1) to develop better products and improved processes, (2) to incorporate greater nutritive values and improved flavor into our products, (3) to build in more convenience and "maid service," and (4) to protect foods with better packaging.

To keep up with the growth which we see ahead, the food industry is investing millions of dollars in research and more millions in new plants and equipment. The food industry has demonstrated its stability during the recent economic decline and the outlook for the future justifies great optimism. I believe that 1959 will be a prosperous year.



NEW K-STATE BUILDING—Here is an architect's drawing of the new building which will house the Kansas State College flour mill and other facilities that were destroyed in East Waters Hall fire Aug. 25, 1957. Dr. John Shellenberger, head of the department of flour and feed milling industries, said the call for bids for construction will be Feb. 10.

STORAGE BUILDING BURNS

HART, OKLA. — A wood storage unit owned by Hart Elevator Co. and 15,000 bu. of maize were destroyed by fire recently. Roy Burrus, owner of the company, estimated losses at $60,000.

Sales Opportunities To Be Emphasized At ADA Convention

KANSAS CITY—The existence of excellent sales opportunities for dehydrated alfalfa will be emphasized strongly during the "New Day for Dehy" convention of the American Dehydrators Assn. Jan. 28-30 at the Shamrock - Hilton Hotel, Houston, Texas.

The program for the annual meeting will also contain valuable information on production and management problems. Several inspirational and entertaining speakers, plus a number of social events, are expected to make this ADA convention "the best ever," according to Joseph Chrisman, ADA executive vice president.

Dr. Roland Bethke, Ralston Purina Co., St. Louis, will set the tone for the major portion of the program on Jan. 29 when he speaks on "Dehy's Future in Formula Feeds." This theme will be carried through for various types of feed by H. R. Halloran, Halloran Research Farm, Modesto, Cal., poultry; Dr. H. O. Kunkel, Texas A&M College, ruminants; Dr. C. F. Huffman, Michigan State University, dairy cows, and Dr. W. N. McMillen, A. E. Staley Manufacturing Co., Decatur, Ill., for swine. Each speaker will stress the importance of dehy in various rations.

More information about nutrition research with dehydrated alfalfa will be presented at the "Research Round Table" scheduled for the evening of Jan. 29. With Dr. J. R. Couch, Texas A&M College, as moderator, members of the ADA Research Council will present brief summaries of current work. These men will then be joined by those who spoke earlier in the day on nutrition topics for a question and answer session.

Production and marketing topics will be in the spotlight Jan. 30. Frank Allen, head of the Archer-Daniels-Midland Co. equipment division, Kansas City; Robert Fulton, head of the ADM alfalfa division, Kansas City, and Ralph Kneeland, assistant to the director, bureau of enforcement, Food & Drug Administration, Washington, will present the production workshop. Among their topics will be pelleting developments, quality control programs, blending, storage and processing changes and plant management goals. Exhibits of what's new will be a feature of the convention this year.

Dr. L. C. Cunningham, professor of farm management at Cornell University, will talk on the potential for dehydrated alfalfa in formula feeds during the marketing forum. "How to Get Better" is the title of the concluding talk to be given by Joseph E. Burger, director of public relations for H. V. Nootbaar & Co., Pasadena, Cal.

The convention will be opened by Robert S. Pharo, Keystone Dehydrators, Nazareth, Pa., ADA president.

A dinner honoring the new president will be the social highlight Jan. 29. Bryan Blalock, the Borden Co., Marshall, Texas, will be the speaker.

Other social events planned include a "South of the Border Party" the evening of Jan. 28 and the annual dinner-dance Jan. 30. Shep Fields will provide the music for the dance.

Registration will begin Jan. 28. For early arrivals a boat trip on the Houston Ship Channel to the San Jacinto Monument is planned. A post-convention tour will leave Houston airport at 8 a.m., Jan. 31, for three days in Mexico City.

Reservation for the convention may be made direct with the Shamrock-Hilton Hotel, Houston.

GIVE HIM ADVICE HE'LL APPRECIATE

Remind him to order Morton T-M Salt. See page 59.

Mississippi Progress Boomed by Agriculture

WEST POINT, MISS.—The North Mississippi Development Assn. reports that Union County has approved a $340,000 bond issue for construction of an egg processing plant for lease to the Mississippi Federated Cooperatives which will process eggs from 20 northeast counties and will employ 100 workers.

The association also said a $250,000 Hoener Boxes, Inc., plant at Tupelo is under way which will employ 50 to 75 persons to make corrugated boxes.

Other new operations are: a new $750,000 fertilizer plant, operated by the Mississippi Federated Cooperatives at New Albany, which has begun production and expects to reach capacity next spring.

Full-scale production is expected to begin at the new HEF Corporation ammonium perchlorate plant at Columbus, Miss., shortly.

Sodium chlorate production at the American Potash & Chemical Corp. plant at Hamilton is expected to begin in the next week or so. The $5-million plant has been under construction for over a year.

California Feed Men To Meet April 23-25

SACRAMENTO, CAL.—W. A. Gould, Consolidated Milling Co., San Francisco, has been appointed general chairman for the 35th annual meeting of the California Hay, Grain & Feed Dealers Assn. The convention will be held April 23-25, 1959, at the Fairmont Hotel, San Francisco.

Members of the convention committee include: Dolph Hill, Jr., Golden Eagle Milling Co., Petaluma; Bill Arends, Ralston Purina Co., Oakland; Bill Drum, Cargill, Inc., West Sacramento, and Dick Smith, Andersen-Smith Co., San Francisco. Additional committeemen will be announced at a later date.

Over 400 feed and grain men are expected to attend the 1959 industry meeting.

North Carolina Feed Men Hear Nutrition Discussions

RALEIGH, N.C. — Guest speakers and North Carolina State College staff members joined in presenting information on various aspects of nutrition at the recent 13th annual North Carolina Animal Nutrition Conference.

The conference was sponsored by the college in cooperation with the North Carolina Feed Manufacturers Assn. and the North Carolina Department of Agriculture.

Laying hen nutrition, broiler feeding and dairy feeding were among the subjects discussed. Following are reviews of papers presented at the conference:

FORMULATION OF FEEDS FOR LAYING HENS—Dr. J. R. Couch, departments of biochemistry and nutrition and poultry science, Texas A&M College, said that the nutrient requirements of the high egg producer of today are quite exacting and it is probably necessary to over-formulate with many essential nutrients in order to keep the egg factory operating at capacity.

Protein: There have been a number of reports that it may be possible to lower the protein level of the complete feed to 12-13%. From the literature, Dr. Couch said, it is apparent that investigators had used as few as four hens per group in laying cages and as high as 20 hens per group. Such numbers per group may not produce results which are trustworthy in the field. Experiments should be carried out with larger groups. It also is noted that there was a big variation between groups in some of the reports.

Dr. Couch recommended that protein levels of 16-17% continue to be used until more conclusive evidence is provided through large scale experiments for lowering protein levels.

Protein Sources: "Soybean oil meal continues to be the basic protein concentrate and works quite successfully when the formula is supplemented with small quantities of unidentified factor ingredients," Dr. Couch said. "It is not necessary to use sources of animal protein if the cost per unit of protein is excessive."

Energy: Egg production is not significantly affected by energy content, the speaker noted. Amount of feed required per dozen eggs is decreased as the energy content is increased. It has been estimated that the amount of feed required per dozen eggs can be decreased 2% for each 1% of added fat.

In recent Texas studies, an improvement of 4.37% in feed conversion was obtained from addition of 2½% fat in a mash containing 17% protein. A further consistent improvement was not obtained when fat level was raised to 5% from 2½%; improvement was only .73%. C. A. Denton of USDA also has observed that improvement in conversion was not as consistent in recent studies as it had been two or three years ago when fat level (added) was increased above 2½ to 3%. The formula in the Texas study contained 5% poultry by-product meal, and energy content of the basal was 910 Calories productive energy per pound. It is not believed economical to use more than 2½ to 3% stabilized fat in laying mashes at the present time, Dr. Couch said.

(Turn to NORTH CAROLINA, page 101)

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Economist Outlines Grain Bank Pros, Cons for Feeder

LAFAYETTE, IND.—Advantages and disadvantages of the grain bank system of feed handling from the feeder's point of view were outlined recently by a Purdue University agricultural economist.

Writing in the Purdue publication, Economic and Marketing Information for Indiana Farmers, Dr. W. S. Farris of the Purdue agricultural economics department listed average charges for the service and then pointed out the system's good and bad points.

He defined the grain bank system as an arrangement between the feeder and the feed mill in which the farmer deposits grain at his convenience with the feed mill to be later withdrawn by the farmer in the form of mixed feed. The feed mill, on order from the farmer, mixes the grain with necessary supplements and other ingredients and delivers the mixed feed to the farm. In many cases, the feed is delivered directly to the feed lot and placed in the feeder.

Charges

Dr. Farris found that charges for this kind of service vary widely. But some of the usual charges are as follows: Hauling corn to the feed mill (if the farmer does not do this himself), 5¢ cwt.; drying, 5@10¢ bu.; storage, 1@1½¢ bu. per month; grinding, mixing, 10@15¢ bu.; supplement added, current cost; delivery to farm (depending on distance and size of load) $1.50@3 ton.

The costs of alternative methods of handling corn to be fed using on-farm facilities are: Ear corn, 31.3¢ bu.; shelled corn, 30.5¢ bu.

These costs include harvesting, hauling, elevating, drying, shelling, storing, grinding, mixing and feeding 10,000 bu. of corn stored five months, he said.

Disadvantages

Livestock producers face several problems, in addition to paying for services rendered, when they use the grain bank plan, Dr. Farris said. These are as follows:

- Feeders must be large enough to accommodate sizeable loads of feed.
- All-weather driveways must be provided.
- The likelihood of disease being brought to the farm is increased.
- The producer will need to plan his feed procurement needs in advance.
- It is impossible to preserve the identity of corn deposited in the grain bank.

Advantages

Probably the most important advantage to the farmer, Dr. Farris said, is that the grain bank saves time for him. This is especially true, he said, in hog feeding operations where feed is placed in the hog feeders when delivered. The corn is handled but once. One Indiana hog producer who uses the grain bank arrangement had over 900 man-work units per man on his farm, Dr. Farris said. This is about three times the man-work units accomplished per man on most central Indiana farms.

"The manager attributes a large part of the efficiency in his farm operation to the use of the grain bank," Dr. Farris reported.

Convenience is another of the advantages listed by Dr. Farris. The grain bank system allows the farmer to use days not otherwise available for productive farm operations to transport corn to the feed mill. Corn can be hauled to the mill at irregular intervals, but feed must be mixed more or less regularly. To get feed delivered, the farmer needs simply to make a phone call, the economist points out.

Also pointed out was the fact that an advantage in storage can sometimes be gained by using the grain bank plan. This may be especially true, Dr. Farris said, for farmers whose grain storage facilities are in need of being replaced.

A good part of his grain storage can be shifted to the local elevator and feed mill rather than to additional storage on the farm. This arrangement permits funds to be used as operating capital rather than being tied up in fixed facilities, Dr. Farris pointed out.

C. C. Fawcett

PURINA APPOINTMENT—C. C. Fawcett, art director of Ralston Purina Co., St. Louis, and a dog judge and authority, has been named director of Purina's newly created dog care division, Raymond E. Rowland, president, has announced. Mr. Fawcett assumed his new duties Jan. 2. Mr. Rowland said growth of the company's dog food division necessitated the forming of the new division. Mr. Fawcett has been with Purina 32 years. He has been known nationally in dog circles for many years and has won several major awards on dogs he has shown.

Pioneer Salesman, Sigurd Peterson, Dies

ST. PAUL, MINN.—Sigurd Peterson, pioneer meat and bone meal and tankage salesman for Swift & Co., South St. Paul, died Dec. 26 of a heart attack. He had been ill four years.

A native of Denmark, Mr. Peterson came to the U.S. at the age of 17. He joined Swift & Co. in St. Paul in 1918 after a career as a cabin boy on a butter ship sailing from Denmark to Australia, as a cowboy in Wyoming and as a buttermaker.

His cowboy experience and later experience in the U.S. Cavalry served him in his early years as a salesman when he made his rounds on horseback during periods of the year when roads were made impassable by snow or mud.

Mr. Peterson served Swift & Co. as a salesman for the animal by-products department until 1942 when he was named assistant to the manager of the by-products department. He held this post until retirement in 1953.

Surviving him are two daughters, a brother and several grandchildren. His brother is Harald Peterson, Copenhagen, Denmark, Danish defense minister.

Air Field Storage Set

INDIANAPOLIS, IND.—The newly formed Indianapolis Grain Warehouse Co. has announced plans to open a grain terminal Feb. 1 on a 30-acre section of Stout Field, home base of the Indiana Air National Guard. Charles W. Jackson, president, said the terminal will be used largely to store grain, primarily from Illinois and Iowa, for the Commodity Credit Corp.

Meat Imports Are "Two-Way Street," Cattlemen Told

SANTA ROSA, CAL.—Talking on the controversial question of heavy meat imports during 1958, Dr. Herrell Degraff, professor of food economics, Cornell University, said that cattlemen must look at imports as a "two-way street" and that if it had not been for the export of tallow and hides during the past few years, the price of U.S. cattle would not have been so high and might have been considerably lower. Up until this year, he said, our exports of livestock and livestock products have exceeded our imports.

Speaking at the 42nd annual convention of the California Cattlemen's Assn. here, Dr. Degraff mentioned the matter of holding our market.

Had there not been large imports of boned cow beef and other processing type meat, he said, the cattlemen may have lost a good deal of their hamburger market due to the decrease in U.S. cow slaughter.

He pointed to the fact that hamburger is a large factor in the total meat picture, with teenagers in particular, and had the supply been reduced substantially they would have been forced to seek substitutes such as chicken, and this market might well be lost for the future.

Keeps Prices Reasonable

Another important point, he said, is that imports had a tendency to keep U.S. cattle prices from reaching that point whereby the "fly-by-night, drug store cowboy" would be attracted to the cattle business, thereby adding to the buildup of cattle inventory now and adding greatly to the complexities in periods of heavy reduction of inventories brought on by drastic price drops. The price differential between what is profitable for the established cowman and the price which would attract the profit seeking outsider is small but highly important, he stated.

All forecasts for the future of the industry were not dim, and it was pointed out that the cattlemen are taking steps to help reduce the drastic booms and busts that have plagued the industry in the past.

Dr. Daniel G. Aldrich, chairman of the department of soils and plant nutrition, University of California, discussed development of range, pasture and other feed crop lands in California. He said that any considerable increase in acreage available will have to wait on development of a state water plan.

Grading

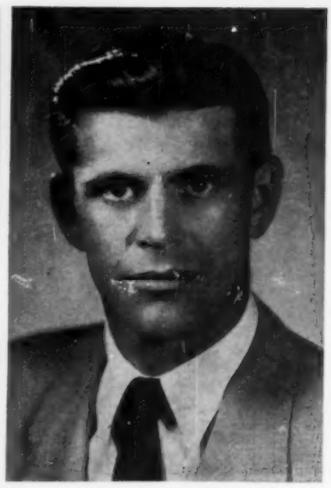
David M. Pettus, director of the livestock division, Agricultural Marketing Service of the USDA, told cattlemen that, like many things, today's research and changes may already be out of date.

He said that some day meat grading may be unnecessary because of breeding which will insure the desired kind of meat. Mr. Pettus spoke of the possibility of cattlemen being able to "tenderize livestock on the hoof." He said that perhaps grades could be refined, such as Choice No. 1 and Choice No. 2, to make up a dual system.

When asked after his talk of what the chances were of such a grading being instituted by the USDA, he said that further research and the feelings of cattlemen would determine a change.

Nebraska Egg Council Affiliation Planned

LINCOLN, NEB. — Nebraska will take steps to organize an affiliate of the National Egg Producers Council Jan. 20 at a meeting in the Hotel Lincoln here, announced the Nebraska Poultry Improvement Assn.



Dr. C. J. Lewis

VICE PRESIDENT—Dr. C. J. Lewis, head of the nutrition and research department of Kent Feeds, Muscatine, Iowa, for the past two years, has been promoted to vice president and director of research. Dr. Lewis joined Kent Feeds after receiving a doctor's degree in animal nutrition from Iowa State College. G. A. Kent, president of Kent Feeds, made the announcement. He said Dr. Lewis will be located in Muscatine at administrative headquarters of the firm.

More Dog Food Consumed in '58

NEW YORK—More than 2 billion lb. of prepared dog food was consumed by 26 million dogs in 18 million U.S. homes during 1958, reported the Gaines Dog Research Center here.

This represents about 380 million consumer dollars, the center said, which was more money than spent on baby food in the same period.

The center feels that the yearly increase in dog food sales is accounted for by a larger dog population and a longer life span of the dogs. Dog food prices have fallen off some 12% since 1953, which is another reason for the increase in purchases, the center said.

Walter A. Davidson Named to AMS Post

WASHINGTON — Appointment of Walter A. Davidson as deputy director of the Agricultural Marketing Service grain division was announced recently by Oris V. Wells, administrator of the U.S. Department of Agriculture's Agricultural Marketing Service. Bert W. Whitlock is director of the division.

Mr. Davidson has been chief of the seed branch of the AMS grain division and its predecessor organizations since 1938. He joined USDA in 1931 as an assistant in seed law enforcement.

In carrying out his responsibility for enforcing the Federal Seed Act, Mr. Davidson negotiated cooperative agreements with all 48 states. Under these agreements the service of about 400 state inspectors are utilized. About 25% of the seed shipped in interstate commerce in 1940 was unlabeled or mislabeled, compared to about 7% in 1958.

Mr. Davidson has worked for improvement of the Federal Seed Act and of state seed laws. He helped draft the legislation which extended application of the federal law to domestic as well as imported seed. Furthur improvements were embodied in amendments passed in 1944, 1956, and 1958. He helped develop a Suggested Uniform State Seed Law.

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New Oregon Plant Specializes In Production of Complete Pelleted Feeds for Livestock

One of the feeding developments of widespread current interest is the use of complete pelleted rations, including both roughage and concentrate, for ruminants.

Specializing in the production of complete pelleted feed for cattle and sheep and hogs is a new all-steel feed mill at Jefferson, Ore. The plant also will be able to produce other straight or mixed feeds and pellets.

The new plant is owned and operated by the Pelco Co., whose officials call it one of the most modern and flexible mills in the Pacific Northwest. The installation features automatic, push-button operation. Other than a man who puts bales of hay on a conveyor for transfer from storage sheds into the mill, the entire operation can be handled by one man.

The plant operates on a continuous flow, from the processing of hay and other ingredients to sacking or bulk loading facilities. Present pellet production capacity is 4-5 tons per hour. This capacity could be doubled immediately merely by the installation of an additional pellet mill.

The Pelco Co. is headed by a group of Albany and Jefferson, Ore., businessmen. Their president is Harold Fisher, and the plant manager is Bill Moye.

Design, engineering and construction of the new plant were furnished by Reid-Strutt Co., Inc., Portland, Ore.

In the design, company officials indicated, the Reid-Strutt engineers paid particular attention to flexibility and push-button operation which would result in lower labor and operational costs.

The cost of the complete plant was in the neighborhood of $125,000.

In addition to the hay and complete pellets manufactured for sale, the Pelco firm will do custom pelleting. Other types of straight or mixed feeds and pellets also will be produced, and the operation can be expanded to the manufacture of various formula feeds.

Balanced Ration

Mr. Fisher said the use of a pelleted ration, including alfalfa mixed with ground grains, molasses and other supplements, gives the feeder a balanced ration which requires a small storage area and provides easier handling.

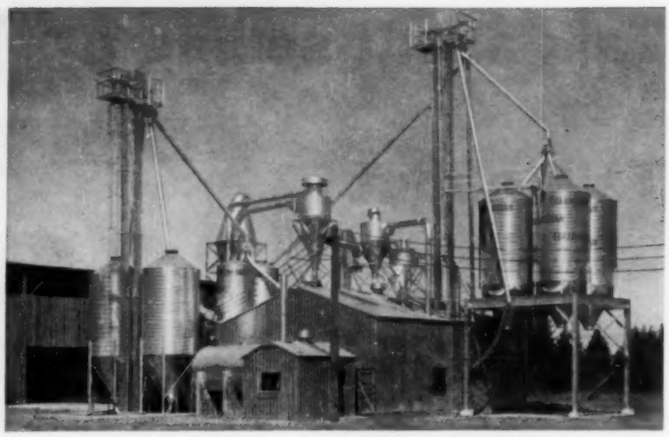
A dehydrator is planned in connection with the plant. This is expected to mean local area alfalfa production.

Mr. Moye said the plant is simple and compact, yet makes use of modern labor-saving devices. Also, he noted, provision is made for economical expansion of feed or hay pelleting production, or for inclusion of more incoming grain and hay storage, or for expansion of prepared feed storage.

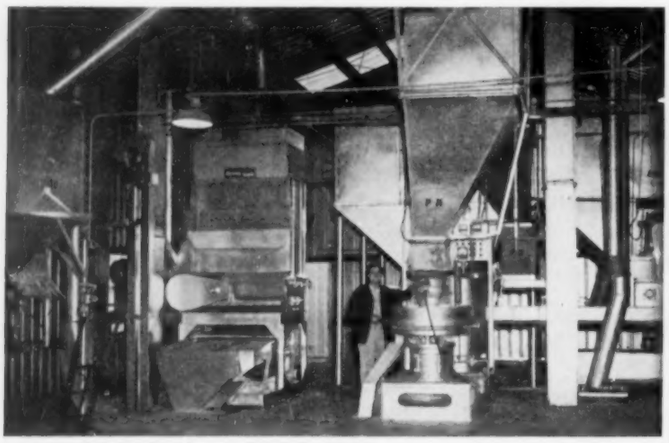
Hay Sheds

Large buildings formerly used for flax storage are now used as hay sheds in connection with the plant. A man in the shed cuts wires on the baled hay and puts the hay onto a 75-ft. variable drive drag conveyor which carries it into the mill.

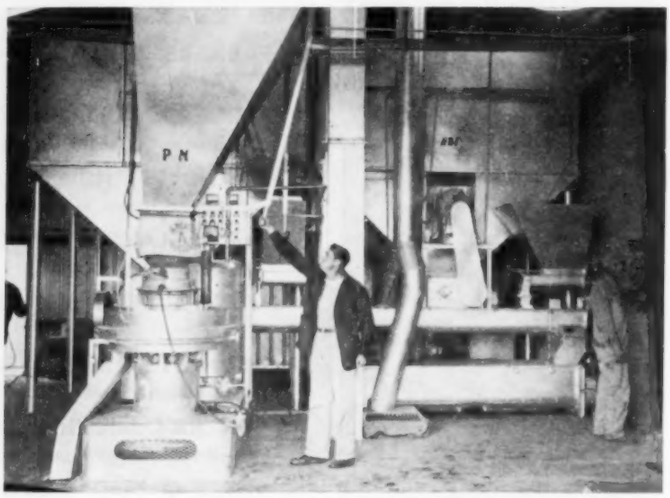
The plant includes two Columbian steel buildings, along with Columbian storage tanks for grain and bulk



An exterior view of the new Pelco Co. plant for pelleting hay and complete rations for cattle, sheep and hogs. The plant includes two Columbian steel buildings, one of which is in the center of this photo. One building houses the grinding section, and the other houses mixing and pelleting facilities. Also shown here are the truck loading bins (on the right), boiler room, molasses storage tank, grain bins, bins over the grinder, and a hay shed (on the left).

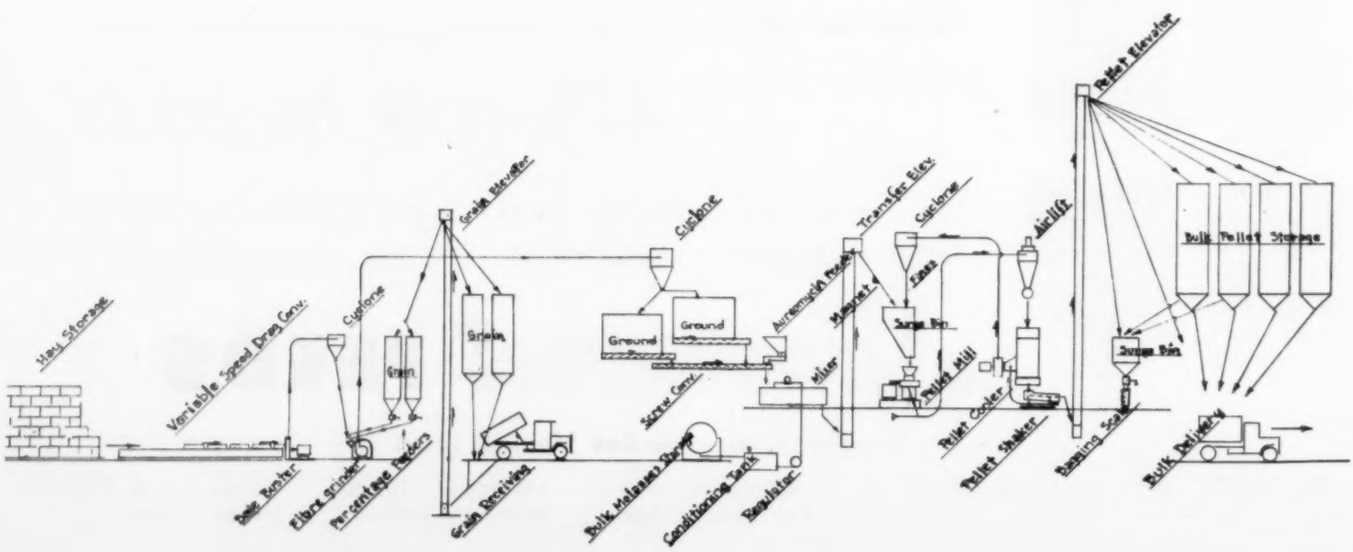


The 100 h.p. Oliver pellet mill is in the foreground, and adjacent to it is an electric control panel. The pellet mill bin is equipped with bin level indicators. In the background are holding bins, with twin variable speed augers beneath them. Partially visible on the right are a collecting conveyor and the continuous mixer. On the left are the Strong-Scott pellet cooler and shaker and the Richardson G-17 bagging scale.



Another view of the pellet mill, holding bins for the mixing system in the background, and collecting conveyor, micro-ingredient hopper and continuous mixer on the right.

Flow Diagram



finished products. One of the buildings houses the two-stage grinding section and electric panel control center. The other building, of the same size, houses mixing, pelleting and other facilities.

Operations Described

The incoming hay is fed first into a 150 h.p. bale buster and chopper, then blown up to a collector. From there it goes into a 125 h.p. Prater Fibre Grinder, which reduces the material to the desired grind. Both units can operate at a rate of 10 tons per hour.

The facilities include pit unloading for grain, which is elevated into steel storage tanks. From the storage tanks, grain is elevated to bins over the Prater grinder, which processes grain as well as hay. The ground grain goes to holding bins over the mixing system.

Roughage handled in the mill has ranged from good alfalfa hay to stubble grass. A 3/16" screen is usually used on the grinder.

Mr. Moye said the grinding unit gives a controlled, uniform grind, which helps in the pelleting operations.

The ground hay, ground grains and additives are proportioned by means of Merchen feeders and Draver feeders. The hay and grain are metered into a gathering conveyor and then go into a continuous mixer. A hopper is provided for metering of micro-ingredients into the collecting conveyor.

The mixing bins have live bottoms, permitting increased holding capacity without much height.

A Prater twin spiral mixer has recently been added to make premixes which are metered into the continuous mixing system.

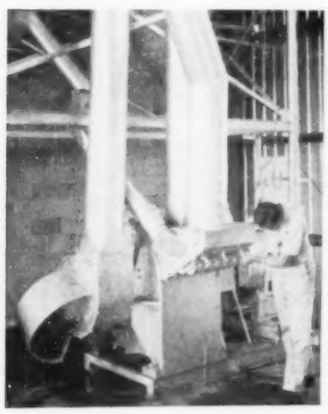
Pelleting

All of the ingredients are mixed and molasses is added in a Strong-Scott dual agitator continuous mixer. From there, the material is elevated to a surge bin over the 100 h.p. Oliver pellet mill. The pellets being made are 3/16, ¼, ⅝ and ¾ in.

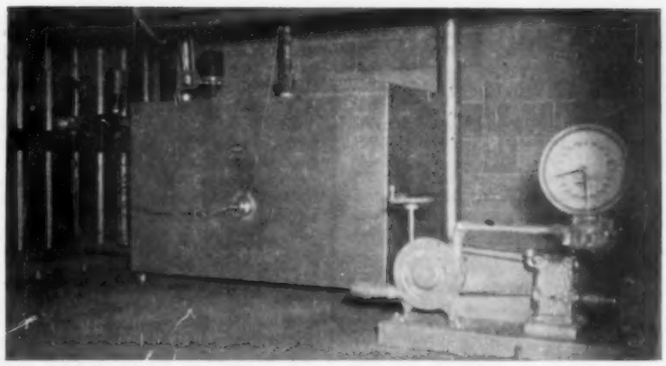
An Air Conveyor brand airlift conveys the hot pellets to a Strong-Scott pellet cooler, which discharges automatically onto a Strong-Scott Power-Flo scalper for removal of fines.

The finished pellets are then elevated to either the Richardson sacking facilities or to bulk bins. There are four overhead Columbian tanks for bulk loading of trucks.

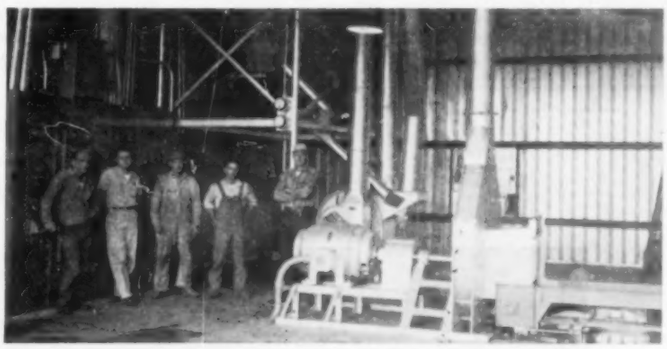
The present mixing control center will handle twice the present production. Grinding and pellet cooling facilities also are twice the current pelleting capacity. Therefore, the only additional equipment necessary to double the original output would be one pellet mill, a bin over it and hook-up of electrical connections. Provision already has been made for future electrical circuits in conduit which would be required to add the equipment for doubling production.



The 125 h.p. Prater Fibre Grinder used for grinding grain and the final grinding of hay.



The molasses conditioning tank and a Strong-Scott molasses regulator and meter are shown in this picture.



This is the grinding section of the Pelco plant, including a bale buster and chopper in the foreground, a grinder behind and the electric panel control center.

Serviceman's Forums Planned in New Jersey

NEW BRUNSWICK, N.J.—A series of feed serviceman's forums has been scheduled for 1959 by the extension service of Rutgers University.

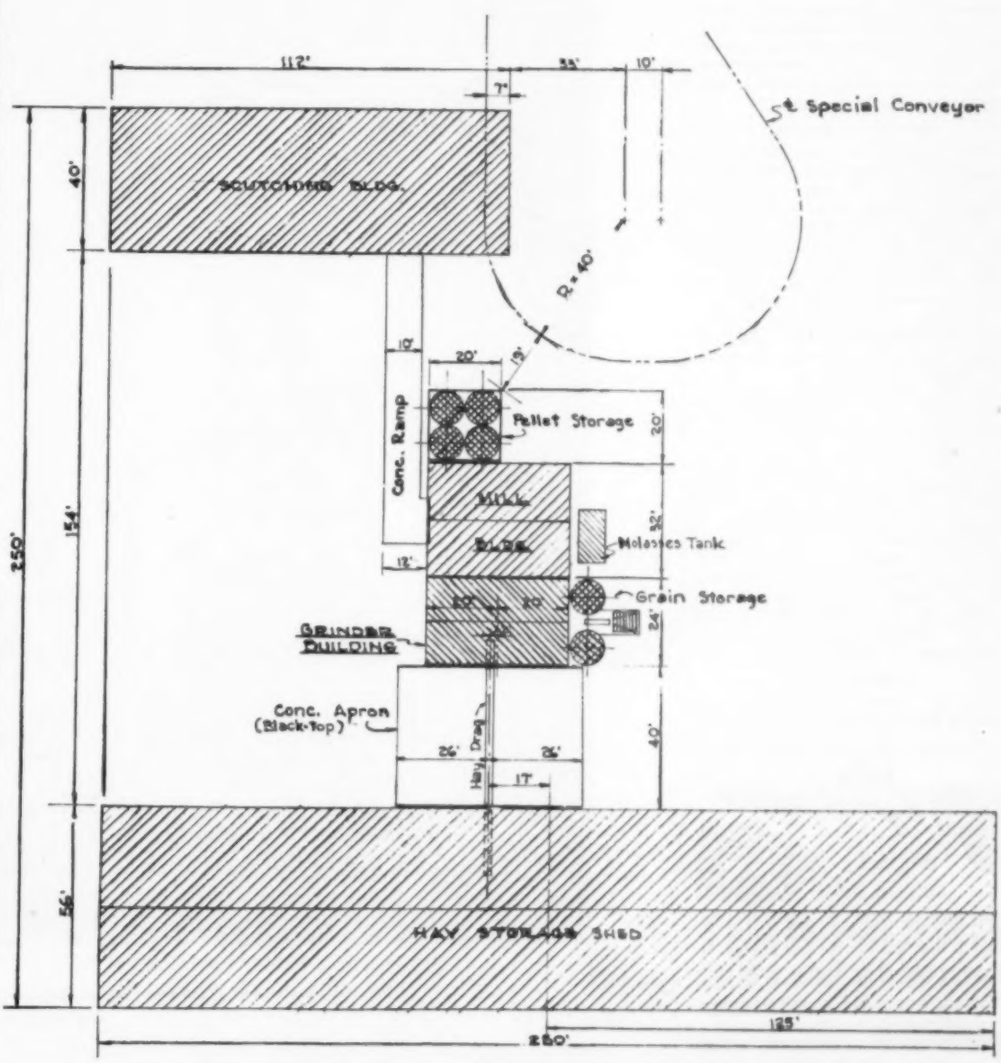
Forums will be held the first, second and third Wednesdays of January, March, May, July and September in Clayton, Toms River and Trenton, respectively. All meetings will be held from 1:30 to 3 p.m. The only deviation from this schedule will be Jan. 21 when a one-day institute on poultry disease at Rutgers will replace the regular forum at Trenton.

University officials said the feed and poultry serviceman, through his contacts with poultrymen throughout the state, is an important link in the educational chain contributing to better management of New Jersey poultry farms. The forums were scheduled, the university announced, "recognizing this contribution."

J. C. Taylor, extension specialist in poultry husbandry, has announced the program for January meetings. He will open the meetings with a discussion of the plan and purpose of the forums. Following him will be Dr. Frank V. Beck, extension specialist in agricultural economics, who will talk on "The Future of New Jersey's Poultry Industry—How It Will Affect You." A discussion of the present situation and current problems will follow Dr. Beck's address.

The Clayton meetings will be held at the Gloucester County Office Building on North Delsea Drive, the Toms River meetings at the Ocean City Agricultural Center on Whitesville Road and the Trenton meetings at the Mercer County Extension Office Building on Spruce St.

Plot Plan



Bloat Research, Nutrition, Grub Control Discussed at Washington State College

PULLMAN, WASH.—Research indicating that bloat-causing factors in feed can be destroyed by heat was reported at the recent 9th annual Stockman's Short Course at Washington State College.

Among other reports were talks concerning mineral nutrition, financing livestock production in Washington, additives for ruminants, cattle grub control, pelleted feeds for young animals, consumers' meat preferences and farm outlook.

The event was attended by some 230 stockmen from eight western states, Alberta, British Columbia, Australia, Hawaii and Yugoslavia.

Dr. I. A. Dyer, Washington State College department of animal science, said that various studies have shown that bloat is caused by the breakdown products of certain protein and carbohydrate-like materials unstable to heat, and that whatever the fraction, or fractions, causing bloat, heat will destroy the cause. He said researchers at Washington had produced bloat in sheep by giving the animals 154 oz. of fresh alfalfa and ladino clover juice. All sheep given the juice bloated and died. Another group of sheep bloated and died after being given ladino clover juice that had been frozen.

On the other hand, boiling the legume juice for 30 min., and dehydrating the juice both prevented bloat. None of the animals given the boiled legume juice or the dehydrated alfalfa juice developed bloat.

Dr. Dyer told the stockmen that researchers still do not know the basic cause of bloat. "It is difficult to develop a preventive for something we cannot define," he said.

The nutritionist did say, however, that some bloat preventives and medical remedies work surprisingly well. They are not widely used because of their cost, the cost of administering them, and the fact that they may not always work, he said.

Minerals in Rations

Paul W. Mattson, manager of the agricultural products division, Morton Salt Co., Chicago, cautioned stockmen against overlooking the need for minerals in livestock rations. He said wonder drugs and wonder feeds have tended to overshadow some of the more basic principles of a sound livestock feeding program.

Faster gains and higher production rates in livestock actually step up requirements for minerals, the feeding expert declared.

He said there is an increase in the need for the 13 or more basic minerals and at least 10 should be fed "cafeteria" style, or free choice. He listed the basic 13 as calcium, phosphorus, chlorine, sodium, potassium, sulphur, magnesium, iodine, cobalt, copper, iron, zinc and manganese.

Mr. Mattson said a safe, complete and low-cost mineral feeding program for farm animals could be provided by free choice trace-mineralized salt in one side of a divided mineral box, and a calcium-phosphorus mineral supplement in the other side.

Pelleted Feed

Joe B. Johnson, Washington extension livestock specialist, discussed the use of pelleted feed for young animals. He pointed out the importance of providing young animals with the form of feed they like and will eat in quantity as they grow and fatten in proportion to the amount of feed consumed.

Mr. Johnson reported an Oregon State College study showing a high preference by pigs for a rolled creep-feed ration. He said 12 litters of pigs ate 1413 lb. of rolled feed, 535 lb. of ground, 270 lb. of crumbled, and 252 lb. of pelleted feed.

A companion Oregon study with lambs showed a marked preference for whole or natural grain to rolled grain or pellets. Eighty-six lambs ate 1044 lb. of whole grain ration; 831 lb. of rolled-grain ration; 627 lb. of pellets with Aureomycin, and 627 lb. of pellets without the antibiotic.

The Washington livestock specialist said that many factors such as taste, smell and vision are concerned with the palatability of a feed. With these factors in mind, recent feedstuffs have been developed in many different sizes, shapes, forms, colors and flavors. With the present swing toward pelleted feeds, it becomes more important to know the texture of food most liked by livestock, he added.

Tranquilizer Ups Steer Gain

John McGregor, Hooper, Wash., told stockmen that the addition of a tranquilizer to steer-feeding rations can increase the net profit per steer. He said a net gain of $11.33 per head was realized in a steer-feeding trial conducted with 240 steers this past spring and summer. Washington State College cooperated with the McGregor Land & Livestock Co. in the feeding trial.

In the study, the steers were divided into lots of 60 head. Basic feeding ration for all four groups included alfalfa and alfalfa-grass hay fed free choice plus a concentrate mixture of barley, beet pulp, cull peas, pea meal, molasses and salt. In addition salt and bone meal were fed free choice. All the steers were implanted with 24 mg. of stilbestrol two weeks before the beginning of the trial.

The control lot of 60 steers received no additional treatment. One of the other three lots received 5 mg. per head per day of a tranquilizer mixed with the concentrate. A third lot received 500 mg. per head per day of a goitrogen mixed with the concentrate. (A goitrogen acts on the thyroid gland to depress the normal metabolic rate.) The fourth lot received both the tranquilizer and the goitrogen.

Steers fed the tranquilizer alone gained the most weight and required less feed per pound of gain. The steers getting the goitrogen alone gained most rapidly for the first 30 days, then weight increases dropped. This group showed better "bloom"

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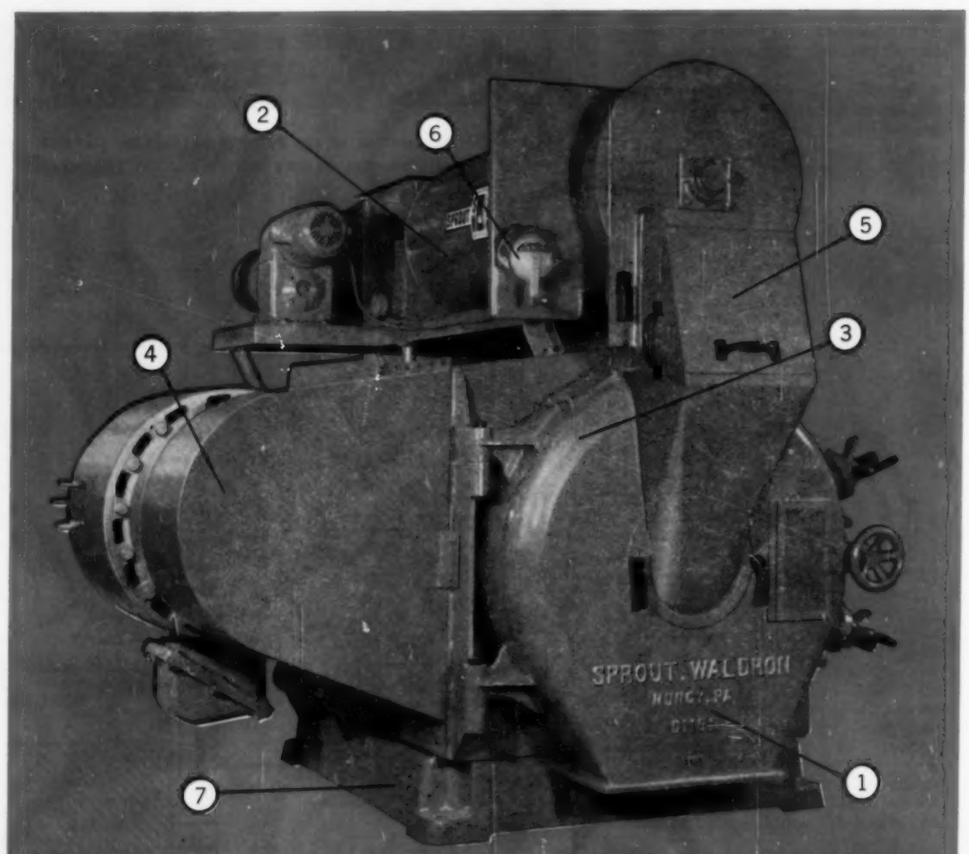

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and finish throughout the feeding period.

When slaughtered, the group getting goitrogen alone had the largest number of U.S. choice steer carcasses, or 25. The lot receiving both the tranquilizer and the goitrogen was second high with 24 choice carcasses. The other two lots had 23 choice carcasses. However, these differences are not significant, Mr. McGregor said.

He said the net gain of 43.6 lb. per head of the steers fed the tranquilizer alone represented clear gain because the cost per head of feeding steers with and without the tranquilizer was the same. The steers sold for $26 cwt., or a net gain of $11.33 per head.

Dr. W. P. Johnson, Princeton, N.J., director of ruminant development for American Cyanamid Co., reviewed recent research on feeding antibiotics to ruminants. He said studies show antibiotics will improve the health and promote efficient growth of both cattle and sheep. Feeding antibiotics to poultry, swine and young calves is now a successfully established practice, he said.

He said the Food & Drug Administration has approved a feeding level of .1 mg. per pound of body weight per dairy cow per day of Aureomycin chlortetracycline. The dose is safe for cattle and is unlikely to affect the suitability of milk for cheese manufacture, or consumption by sensitive individuals, he said.

Systemic Grub Control

David Brannon, Washington State College extension entomologist, pointed out that the systemics now on the market are given either as a bolus, a king-size pill, or applied as an external spray, and added Washington trials indicate the new insecticide "may whittle down drastically or eliminate altogether cattle grub damage."

The bolus, called either ET-57 or Trolene, held grub infestation to a total of 53 for the 89 head of cattle treated in Washington trials. The external spray, Co-ral, held grubs to an average of 1.5 per animal, or a total of 100 grubs for the 65 cattle treated. The 133 untreated cattle used in the study as a check or control had an average of four grubs per animal, or a total of 508.

The entomologist explained that the spray was applied only to the backs of the animals, and that in another series of trials this coming year, spray will be applied over the animal's entire body.

Dr. ElRoy Nelson, vice president and economist of the First Security Corp., Salt Lake City, Utah, commented that the amount of capital per manager or employee for Washington's livestock industry is about five times that considered necessary in the manufacturing industries of the nation and in Washington, or about $100,000 including the value of the livestock, equipment and machinery in the feedlot, the range land, and other items.

Dr. Nelson said ranching and feedlot operations in Washington in 1958 will produce about $570 million in cash farm income, a total of $630 million in gross income, and about $240 million in net income to farmers and ranchers of the state, including earnings off the farm and ranch, and from other sources.

He noted further that credit, or money borrowed for this production, totals $356 million to produce the $570 million cash farm income, or $67 of credit for each $100 of gross income from farm and ranch operation. The farm and ranch mortgage debt in Washintgon on Jan. 1, 1957, Dr. Nelson said, totaled more than $226 million, or almost equal the net income in 1958 of some $240 million. He went on to say that the interest charged for this credit is estimated at $14 million annually for both short credit and farm mortgages.

Consumer Meat Preference

Dr. Charles S. Hobbs, chairman of the animal husbandry department at the University of Tennessee, said that people might choose a poorer grade of meat at the meat counter, but on a taste panel, they prefer the texture, flavor and tenderness of the choicer cuts.

Dr. Hobbs said a Tennessee study used 40 families as a taste panel to evaluate U.S. choice, good, standard and commercial grades of beef, and that the taste-panel families liked the higher grades of meat best. "They chose the choice grade over standard and commercial grades for both loin and round steaks. They preferred choice grade over good for loin steaks. Scores for tenderness, juiciness and flavor ranked from choice to commercial right down the line on a matching basis with the U.S. grade," Dr. Hobbs said.

True D. Morse, under secretary of agriculture, predicted a "huge" demand for livestock products in the three Pacific Coast states. He said population in the three states has increased about 90% since 1940, while cattle production has increased only about half that much. An additional increase of 40% in population by 1975 has been predicted.

He pointed out further that per capita personal income in Washington, Oregon, California and Nevada has remained consistently higher than in any other section of the country for several years. Increased manufacturing in Washington and California provided for most of this expansion, and it is still going on, Mr. Morse said.

Heads Clearing Association Board

MEMPHIS, TENN.—James W. Phelan of Mitchell, Hutchins & Co. has been elected chairman of the board of directors for the Memphis Board of Trade Clearing Assn. He succeeds Ila S. Jehl of Marianna Sales Co., who became one of the directors. The clearing association is the corporation that operates the Memphis Board of Trade's futures market.

Named president was D. J. Guillory of Guillory Sales Co., who also heads the Memphis Board of Trade. Arthur A. Williams was reelected executive vice president.

Directors besides Mr. Jehl are Fred C. Lovitt, Fred C. Lovitt & Co.; Lee Canterbury, Cargill, Inc.; John J. Pepin, L. B. Lovitt & Co.; Harry B. McCoy, Humphreys-Godwin Co., and Richard W. Miller, the Pillsbury Co.

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Feed for Thought

By J. R. LINSNER

Hidden Costs

The curtain has risen on 1959 and we look forward to a new year of progress in the feed industry. The future of the industry appears golden. There will be more mouths to feed. More mouths mean a larger market for milk, meat, and eggs. Increased food production will call for expansion of our industry to meet the challenge. The future is bright for feed manufacturers and 1959 will be a year of opportunity for us all.

As you close the books on the year 1958 perhaps you should stop a minute to reflect on some of your buying and manufacturing methods to see if your profits were drained in 1958 to pay for hidden costs. Some of these might have been the result of buying small quantities of valuable vitamins individually from a number of manufacturers instead of purchasing a modern, properly blended vitamin premix from one reputable manufacturer.

Are you paying your personnel to blend your premixes for you when this service could be performed by Peter Hand's vitamin specialists without paying one cent of premium for it? When your personnel handle expensive vitamins and other feed additives in small quantities waste and spillage could result. Invariably this waste winds up in inferior feeds even though some items may cost thousands of dollars per ton.

There is always the possible hidden cost of inaccuracy when employees accustomed to handling ingredients in hundreds of pounds and tons are asked instead to work with ounces, milligrams and grams. Inaccuracies could also have resulted in the hidden costs of customers lost because your feeds did not produce.

The hidden costs in your inventory control can be reduced by purchasing a few properly blended premixes based on your anticipated use. You'll always have fresh vitamin fortification instead of a lot of opened drums and bags of various vitamins setting around to be spoiled, broken, misplaced or to become too old to use without a pang from your conscience.

Add to your profits in 1959 by eliminating some of these hidden costs. Your Peter Hand representative can review your vitamin needs and suggest a practical and economical program for you.

Let Peter Hand suggest balanced, economical formulas which will also reduce your production costs. Start the new year with a step in the right direction by calling Peter Hand today.

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Dr. Albert L. Elder

PRESIDENT-ELECT—Dr. Albert L. Elder, director of research for Corn Products Co., Argo, Ill., has been chosen president-elect of the American Chemical Society, professional scientific organization. Dr. Elder will take office at the beginning of 1960 and will succeed Dr. John C. Bailar, Jr., professor of inorganic chemistry at the University of Illinois. Dr. Elder has been director of research for Corn Products since 1944. He has been active in the society for 33 years.

Pillsbury Feed Division Holds Sales Meeting

MINNEAPOLIS — The Pillsbury Co. feed division sales force met at French Lick, Ind., recently, for the division's first general sales meeting. Speakers on the program gave the salesmen a broad, optimistic view of the future of the American economy and the part the feed industry will play in its growth.

"The theme of our meeting, 'Countdown for Tomorrow,' aptly expresses our feelings about the need for preparation to meet the tremendous increases in population and the accompanying rise in the consumption of meat, milk and eggs during the next decade," said G. R. Peterson, general manager of the division.

"Our plans include a better trained, better informed sales force; research for new products and better farm management, and more efficient production and distribution to keep feed costs down."

Outside speakers at the meeting included Elmer Wheeler and Dr. Kenneth McFarland, sales consultant to General Motors.

Pillsbury executives on the speakers roster included Mr. Peterson; Poul S. Gerot, president of the company; Philip W. Pillsbury, chairman of the board; Dean McNeal, executive vice president; Rogers C. B. Morton, a Pillsbury director, and Ray Mithun, president of Campbell-Mithun, Inc., the division's advertising agency.

Dover Chosen as Site Of 1959 Chicken Fete

GEORGETOWN, DEL.—Headquarters for the 12th Annual Delmarva Chicken Festival and National Chicken Cooking Contests next year will be Dover, Del., announced C. Ed McCauley, Seaford, Del., president of the Delmarva Poultry Industry, Inc., which sponsors the event.

It is anticipated that the 1959 festival will be held sometime during the third or fourth week of June, the exact dates to be selected jointly by the Delmarva group and leaders of the host community.

Mr. McCauley said that nine towns and cities had expressed interest in serving as host for this annual event, either in 1959 or 1960.

Illinois Agricultural Industries Forum Program Announced

URBANA, ILL.—Feed men and other businessmen serving agriculture will have an opportunity to hear about future trends and what they mean at the first Agricultural Industries Forum planned by the University of Illinois.

Scheduled Jan. 27-28, the program includes general sessions of interest to all food and agricultural industry representatives and special group sessions in farm supplies and equipment, dairy marketing, grain marketing, livestock marketing, poultry and egg marketing and food processing and distribution.

Headlining the general session the morning of Jan. 27 will be Dr. Glenn W. Salisbury, head of the University of Illinois dpeartment of dairy science. He will discuss "New Horizons in Food and Agricultural Science." Other speakers scheduled the first morning are Dr. Harold G. Halcrow, head of the department of agricultural economics, who will speak on "The Challenge of the Farm of Tomorrow," and Henry King, managing director of the Super Market Institute, Chicago, who will address the group on "The Challenge of New Agricultural Horizons to Food and Agricultural Service Industries."

At the luncheon Jan. 27, Dr. David D. Henry, president of the University of Illinois, will report on "University of Illinois Plans for Growth and Development."

Group sessions for individual commodity interests, including grain and farm supplies, are scheduled for the afternoon of the first day and from 8 a.m. to 10 a.m. the morning of the second.

Scheduled for the evening of Jan. 27 is a banquet. The banquet speaker will be John Strohm, farm writer who traveled extensively in Russia and Communist China last summer. His topic will be "The Challenge to American Businessmen of Developments in Foreign Countries."

J. D. Sykes, vice president, Ralston Purina Co., St. Louis, will speak the morning of Jan. 28 on "Marketing Manpower."

The forum has been scheduled between semesters, which leaves men's residence halls available as headquarters. Further information and reservation forms may be secured by writing to Dr. Harold G. Halcrow, head, department of agricultural economics, University of Illinois, Urbana.

Burrus Ships Trainload Of Texo Cattle Feed

FT. WORTH—A 60-car trainload of cattle feed reported to be "possibly the largest shipment ever made in the Ft. Worth area," was shipped to Texo Feed dealers recently, according to Caddo Wright, Burrus Feed Mills livestock specialist.

Texo dealers who received the shipment pointed out that cattlemen are currently feeding higher quality feeds in spite of the excellent pasture conditions existing this year, Mr. Wright said.

"Today's higher price on cattle demands that cattlemen provide a well rounded quality feeding program, not only to insure top marketing price, but to promote a better calf crop next year," he said.

Charles Harris and Wesley Ballman, co-managers of Burrus Feed Mills, manufacturer of Texo Feeds, pointed out that the shipment was possibly the largest ever made in the Ft. Worth area, which they said is "nationally recognized as the cattle feed manufacturing center of the Southwest."

REOPENS FEED MILL

ST. CHARLES, MO.—George Null, proprietor of the Null Grain Mill, which was destroyed by fire recently, has reopened the business under a limited operation.

Pfizer Announces New Research Publication

NEW YORK—Chas. Pfizer & Co., Inc., New York, has announced publication of a new bi-monthly agricultural newsletter, AGRI-Dynamics.

Issued by the company's agricultural division, AGRI-Dynamics reports to farm leaders on farm research at Pfizer and elsewhere in the nation. Although designed for popular reading, the newsletter is prepared especially for county extension agents, vocational agricultural teachers and other farm leaders.

The first issue reports on research activities of some 100 scientists, technologists and other personnel currently working on animal health and animal nutrition problems at Pfizer's agricultural research and development center near Terre Haute, Ind. A second article evaluates tranquilizers as a new feed additive for cattle rations.

AGRI-Dynamics is the second Pfizer agricultural periodical of widespread circulation to be launched in the past year-and-a-half. AGRA Data, a monthly semi-technical magazine published by the firm's agricultural research center, has a circulation of 25,000 and is distributed in some 80 countries. A bi-monthly copy of AGRI-Dynamics may be obtained by writing to Agricultural Services, Chas. Pfizer & Co., Inc., 800 Second Ave., New York 17, N.Y.

Fowl Cholera Vaccine

ATHENS, GA.—A new fowl cholera vaccine developed by U.S. Department of Agriculture scientists will be used experimentally in Toombs County, Georgia, on a flock of about 5,000 pullets, according to Dewey McNiece, extension poultryman. He said that several reports of fowl cholera outbreaks from been received from inside the state.

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RETIREMENT DINNER — K. G. MacAskie (right), district manager for Wirthmore Feeds, Inc., has announced his retirement effective Jan. 1, 1959. He is shown with Lou Whittaker, division sales manager, Olean-Waverly division of the firm's central region, at a recent retirement dinner in his honor. Mr. Whittaker is presenting him with a traveling case given by fellow employees.

Program for Annual Elevator Managers' Clinic Announced

EAST LANSING, MICH. — The annual Elevator Managers' Business Clinic scheduled Jan. 6-7 at Michigan State University will emphasize planning for the future in the grain trade, clinic officials have announced.

Group discussions planned include pricing policy, employee productivity, promotion and advertising and long range planning. Each group will meet four times to allow managers attending to get in on all the discussions.

The program gets under way Jan. 6 with a talk on the "Outlook for 1959" by John Ferris, department of agricultural economics at Michigan State University. Following him, Paul Moore of the Continuing Education Service at the university, will speak on "What Makes a Good Manager?"

Group discussions are scheduled for the afternoon of Jan. 6, and these will continue until noon of Jan. 7. Speakers for the various groups are as follows: Pricing policy, Harold Anderson, Anderson's Grain Terminal; employee productivity, Harold Fearon, department of personnel and production administration, MSU; promotion and advertising, Bernard La Londe department of marketing and transportation administration, MSU; long range planning, Larry Smith, Smith Brothers Elevator, and R. B. Bohnsack, manager, retail division, Farm Bureau Services.

Highlight of the annual clinic will be a talk on "Creative Management" at the noon luncheon Jan. 7 as the convention's concluding feature. The speaker will be Dr. Herb True, professor of marketing at the University of Notre Dame. An authority on management, Dr. True has led many seminars for industry personnel and has served as a management consultant for several large companies.

Headquarters for the clinic will be the Kellogg Center for Continuation Study on the MSU campus. Registration is $12.

The clinic is sponsored by the Michigan Grain & Feed Assn., Michigan Assn. of Farmer Cooperatives and Michigan Bean Shippers Assn., in cooperation with the College of Agriculture, College of Business & Public Service and the Continuing Education Service of MSU.

USDA Forecasts '59 Winter Wheat Crop

WASHINGTON — A 1959 winter wheat crop of 957 million bushels is indicated, based on conditions as of Dec. 1 and other factors, the Agricultural Marketing Service of the U.S. Department of Agriculture has reported. A crop of this size indicates a relatively sharp decline following the record crop of 1958 but it would still be the fifth largest crop of record and 17% above average, AMS said in its crop production report.

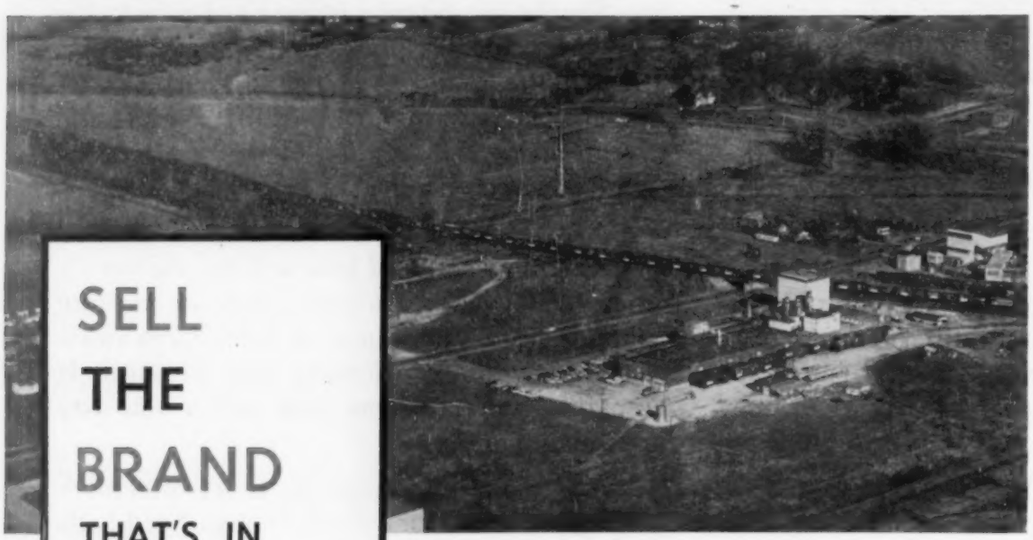
Weather conditions between Dec. 1 and harvest time as well as damage from insects and disease largely influence the final outturn of the crop. The current forecast of production assumes normal weather, insect, and disease conditions for the remainder of the 1959 crop season. In the last 20 years, the average change in the U.S. production estimate from Dec. 1 to harvest has been 125 million bushels, ranging from a maximum change of 274 million bushels to a minimum of 5 million bushels.

Winter wheat seedings in the fall of 1958 spread over a larger acreage than the previous year as the end of the acreage reserve program for wheat made a significantly larger acreage eligible for seeding, the report said. Total seedings of winter wheat for all purposes this fall are estimated at 45.1 million acres, an increase of 2% over seedings in the fall of 1957 but 12% less than average. The crop seeded in the fall of 1958 was planted under acreage allotments and marketing quotas with the same national wheat allotment as last year of 55 million acres.

Present 1959 crop prospects lag well behind the record 1958 crop but are still well ahead of average. In contrast to the uniform favorable conditions of a year ago, several important producing areas are already having to resist the unfavorable shortage of early fall surface moisture. The crop was seeded at an early date as favorable weather permitted regular and extensive field work. However, a significant acreage was seeded in dry surface soils, resulting in slow germination and irregular stands.

CARGILL MAN HONORED

MINNEAPOLIS—Samuel Aronoff, flax manager for Cargill, Inc., Minneapolis, was elected president of the National Flaxseed Producers Assn. at a recent meeting in Minneapolis.



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Integrated Poultry Projects Vs. The Wage-Hour Law

"Changes caused by the evolution of the 'contract poultry farmer' necessitate a reappraisal of the application of the wage-hour law to his employees."

By Charles E. Hoffhaus
Kansas City

EDITOR'S NOTE: The accompanying article is taken from an address given by Charles E. Hoffhaus, attorney with the legal firm of Gage, Hillix, Moore & Park, Kansas City, at a recent meeting of the Indiana State Poultry Assn. Mr. Hoffhaus said that out of the rapid changes in grow-out poultry operations has emerged the concept of the "contract poultry farmer," whom Mr. Hoffhaus calls "a very real farmer." His address covered the wage-hour law exemptions as they apply to employees of the "contract poultry farmer" and others involved in integated poultry programs. Because of the activity of many feed firms in integrated poultry programs, Mr. Hoffhaus' address is of interest to feed men.

Although in the title to this article we have opposed "The Wage-Hour Law vs. Integrated Poultry Projects" in the classic legal adversary framework of A vs. B, there is not necessarily any irreconcilable clash between either the spirit or the letter of the broad humanitarian public policy written into the wage-hour law, on the one hand, and the modern method of raising poultry under grow-out contracts on the other.

This so-called "wage-hour" law is referred to officially as "The Fair Labor Standards Act of 1938." The reader is doubtless familiar with the more salient provisions of the act which set minimum hourly wages (now $1 per hour) and maximum hours (currently 40 hours) per week, after which time and one half must be paid, and which also set out certain child labor requirements, and provide penalties in the nature of civil and criminal liability for violation of the act.

So much for the broad outlines.

Grow-Out System

Integrated poultry projects seem to have had their genesis in the "grow-out" system, which involves, generally speaking, a method of operation whereby a hatcheryman or feed dealer - turned - poultry - farmer places chicks under the care of a farmer for raising by him to broiler size. Although some few farmers still buy the grow-out chicks and feed, and occasionally agree to share market losses, I am advised that the trend is almost universally in the direction of a grow-out contract, in writing, providing for a flat fee per bird raised to broiler size, with title to the birds remaining in the hatcheryman or dealer who also agrees to supply at his sole expense all feed, medicine, etc., and who retains strong flock management powers under the contract.

Now, in addition to such grow-out contracts, we are moving rapidly toward "integrated poultry projects" in which egg suppliers, grow-out operators, processors, and perhaps even retailers are tied together into a production unit by means of written contracts.

Such sweeping changes in the economics of this business could not help but have broad effects on the application to the industry of the wage-hour law. Let's turn, therefore, for a few moments, to the actual wording of some of the principal parts of the wage-hour law and then see how these provisions apply to employers involved in integrated poultry projects.

Provisions

First, it is necessary to understand that the act is remedial and that it is based on the power of Congress to legislate regarding interstate commerce. Next, the key to understanding the application of the act lies in an appreciation of the fact that it is employee oriented or, as Section 776.2 of the regulations issued pursuant to the act puts it, it follows the "Employee basis of coverage," and, "It thus becomes primarily an individual matter as to the nature of the employment of the particular employee." Thus, some employees in your business may be covered, whereas others may not.

The principal operative sections of the act for our purposes are Section 6, dealing with minimum wages, and Section 7, dealing with maximum hours. Both bring within the act's coverage only those employees who are engaged in commerce, or in the production of goods for commerce. "Commerce" as used in the act means interstate commerce.

It is important to note the distinction between the two possible means of coverage. First, engaged in commerce, or secondly, engaged in the production of goods for commerce.

Regulation section 776.9 indicates that an employee is "engaged in commerce" if he is "doing work involving or related to the movement of persons or things among the several states or between any state and any place outside thereof." The act defines "produced" in part, to mean "produced, manufactured, handled, or in any other manner worked on," and also "employed in any closely related process or occupation directly essential to the production thereof."

Accustomed as they are to thinking in terms of the general activity of the business rather than the specific work of each particular employee, persons unfamiliar with the act are surprised how easy it is to find a covered employee in what appears to be basically a local business.

Coverage

Consider whether you have an employee who is hauling and unloading goods coming from out-of-state, or if a hatchery has employees handling chicks to go on out-of-state farms, or delivering feed to such farms, or if the chicks employees deliver go on local farms from which they will be sold as broilers ultimately in interstate transactions.

Office employees engaged in work connected with such interstate transactions also may be engaged in the production of goods for commerce by virtue of their work being "closely related" or "directly essential" thereto.

Many employers undertake to segregate any interstate activities so they are all handled by one or only a few covered employees. It is pointed out in section 776.4 of the regulation that:

"The work week is to be taken as the standard in determining the applicability of the act. Thus, if in any work week an employee is engaged in both covered and noncovered work, he is entitled to both the wage and hours benefits of the act for all the time worked in that week, unless exempted therefrom by some specific provision of the act."

Exemptions

Once it is ascertained that an employee is covered, it then becomes necessary to determine whether any of the exemptions in the act apply to

Wenger's——NEW BULK UNLOADER
FOR { Flat Bed Trucks—Economical / Mill to Farm Deliveries.

Handle both bagged and bulk feeds, (mash, pellets, crumbles, etc.) and whole grains in a single flat bed truck. Horizontal unloader recessed in floor of truck. Vertical boom is 7 feet high (extra height optional). 14 ft. unloading boom will rotate 360 degrees and may be elevated to 18 ft. above ground level with hydraulic hand pump furnished with unit. Entire unit is power driven from power take off. May be installed in your own shop.

Write for information giving dimensions and make of your truck bodies.

Wenger Mixer Mfg. Co.
SABETHA, KANSAS · PHONE 111
Standard of the Industry for Liquid Feed Mixing, Pelleting and Cooling Equipment.

Imported
FISH MEAL
PROMPT and DEFERRED SHIPMENTS
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Anchovy Meal
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(Fishmeal with Solubles)
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FISH SOLUBLES
Dried 100% Pure
Made of South African Pilchards
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UNEXTRACTED ANIMAL LIVER and GLANDULAR MEAL
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New Feed Tag Statements for

DYNAFAC PREMIX

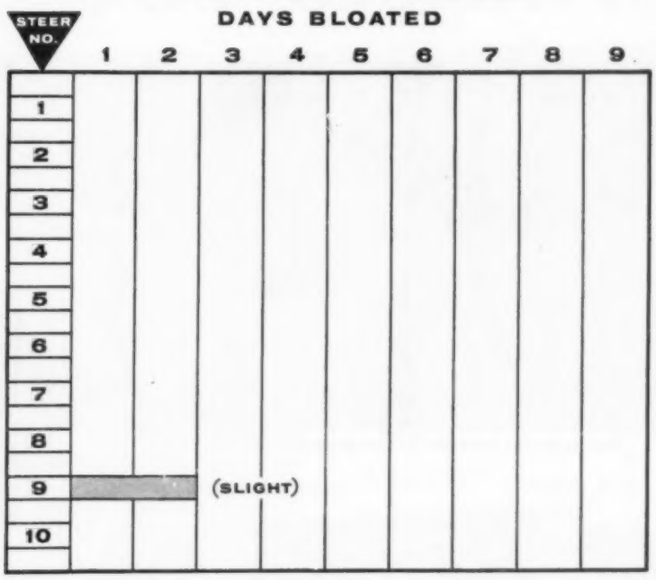
cleared for immediate use

CATTLE AND CALVES:

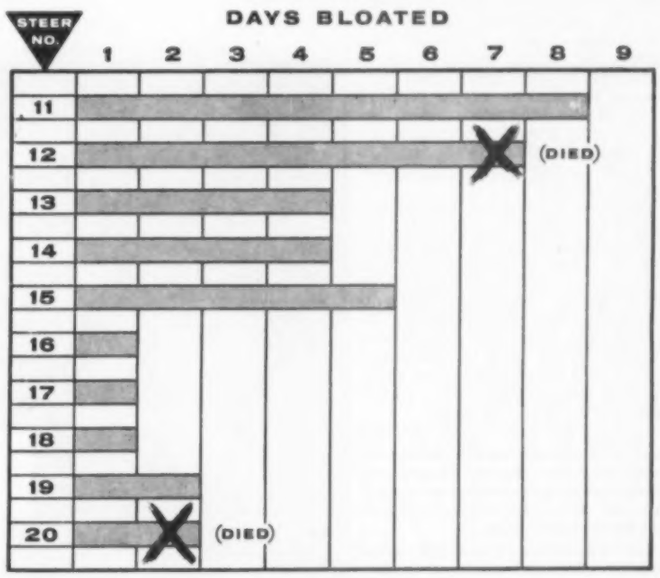
1. For promoting growth, feed conversion, bloom, and on full feed earlier.
2. As an aid in minimizing the occurrence of feed lot bloat due to high consumption of concentrates.
3. As an aid in minimizing the occurrence of feed lot founder due to high consumption of concentrates.

In a typical controlled test at an agricultural college it was shown that DYNAFAC PREMIX practically eliminates danger of feedlot bloat and founder in self-feeding practices. Here are the results of the test:

High Concentrate Self Feeding with 200 Grams of DYNAFAC PREMIX per ton of ration



High Concentrate Self Feeding without DYNAFAC PREMIX



In the 140-day self-feeding test two groups of ten steers each were placed on high concentrate rations. DYNAFAC PREMIX was added to the feed in one pen and only one steer suffered from mild bloat for two days. No founder occurred.

There were 35 bloat-days among the control group without the DYNAFAC PREMIX. Without DYNAFAC PREMIX there were two mortalities due to bloat.

This is news your customers have been waiting for. DYNAFAC PREMIX makes even high concentrate self-feeding practical and by minimizing feedlot bloat and founder, your feeds perform better.

Armour and Company, Chicago, Illinois

Because of the increased demand from feeders everywhere, wire or write for your supply of DYNAFAC PREMIX today.

DYNAFAC PREMIX IS DISTRIBUTED NATIONALLY FOR ARMOUR BY THE CHEMICAL DEPT., McKESSON & ROBBINS, INC.

Donald W. Somers

JOINS ALLIED MILLS—Allied Mills, Inc., Chicago, has announced the appointment of Donald W. Somers as an assistant in the company's advertising and sales promotion division at Ft. Wayne, Ind. Mr. Somers was previously an advertising salesman and news writer for the Hampton (Iowa) Chronicle. He is an agricultural journalism graduate of Iowa State College.

him. The employer of an employee engaged in work under two or more types of exempt activities during a work week, incidentally, can combine these exemptions, so as to exempt the employee for the entire week. This process is known as "tacking" the exemptions.

Although other exemptions may apply under certain circumstances to employees of hatcherymen and feed dealers, this article will be confined to six of the exemptions which appear to have a particular bearing on the problems of those engaged in grow-out systems under integrated poultry projects.

These six exemptions concern employees in executive, administrative, professional or local retailing capacities or acting as outside salesmen; employees of retail establishments; employees of retail establishments also doing some manufacturing; employees in agriculture; employees working in the area of production with regard to agricultural or horticultural commodities; and outside buyers of poultry and eggs.

Perhaps the most important and most controversial of the exemptions from the point of view of grow-out operations is that relating to agriculture, so, the other five exemptions will be reviewed first.

The exemption for executives and persons similarly employed applies only to bonafide executives, administrators, or persons employed in professional capacities.

Local Retailing

An employee exempted under the local retailing capacity must be "customarily and regularly engaged in making retail sales of goods or services of which more than 50% of the dollar volume are made within the state where his place of employment is located" or in "performing work immediately incidental thereto, such as the wrapping or delivery of packages." There is a further proviso that the hours of work of a nature other than the type I have just described must not exceed 20% of the hours worked in the work week by non-exempt employees of the employer. Since a grow-out operator usually sells broilers for resale, this exemption is not too useful to him.

The exemption for outside salesmen applies to those persons employed for the purpose of, and who are customarily and regularly engaged in, being away from their employer's place of business in making sales.

Retail Establishments

In regard to the retail establishment exemptions, we can lump together the exemption for a simple retail establishment and that for a retail establishment which also makes or processes the goods that it sells. The act exempts "Any employee employed by any retail establishment, more than 50% of which establishment's annual dollar volume of sales of goods or services is made within the state in which the establishment is located," and "75% of whose annual dollar volume of sales of goods is not for resale and is recognized as retail sales . . . in the particular industry." Under the retail establishment exemption, all employees of a retail establishment are exempt except those who actually make or process goods.

The reader has probably already seen the implications of this exemption for feed dealers and hatcherymen who are principally involved in a grow-out program. Even though in-state sales may account for 50% of their dollar volume, they will find it impossible to show that 75% of their annual dollar volume is not for resale and that their sales are recognized as retail sales in the particular industry, since their grow-out raised broilers are for resale.

Feed dealers who are in the grow-out business may have enough retail sales volume to qualify for the exemption but there are pitfalls to be avoided if they try to figure in, in some manner, the feed which they ship to the grow-out farmers. To state it simply, the retail establishment exemptions are virtually lost to those who are engaged all-out in an integrated poultry project using grow-out contracts.

The area of production exemption looks rather attractive on first blush. However, the provision of this exemption which limits its application to grow-out operations is the requirement that the work must be done "for market." Thus, employees who devote their time to obtaining eggs from farmers are not exempt when these eggs are intended, not for sale as eggs, but for hatching, to be eventually put down on a farm under a grow-out arrangement. Delivering a hatch of chicks to a farmer likewise would not be "for market."

Finally, section 13(b)(5) of the act exempts from the maximum hours requirement "any individual employed as an outside buyer of poultry, or eggs, in their raw or natural state." Employees who spend at least 80% of their time in the work week in purchasing hatching eggs from farmers would come under this sub-section.

Agricultural Exemption

The agricultural exemption is found in section 13(a)(6) of the Fair Labor Standards Act. It states simply that

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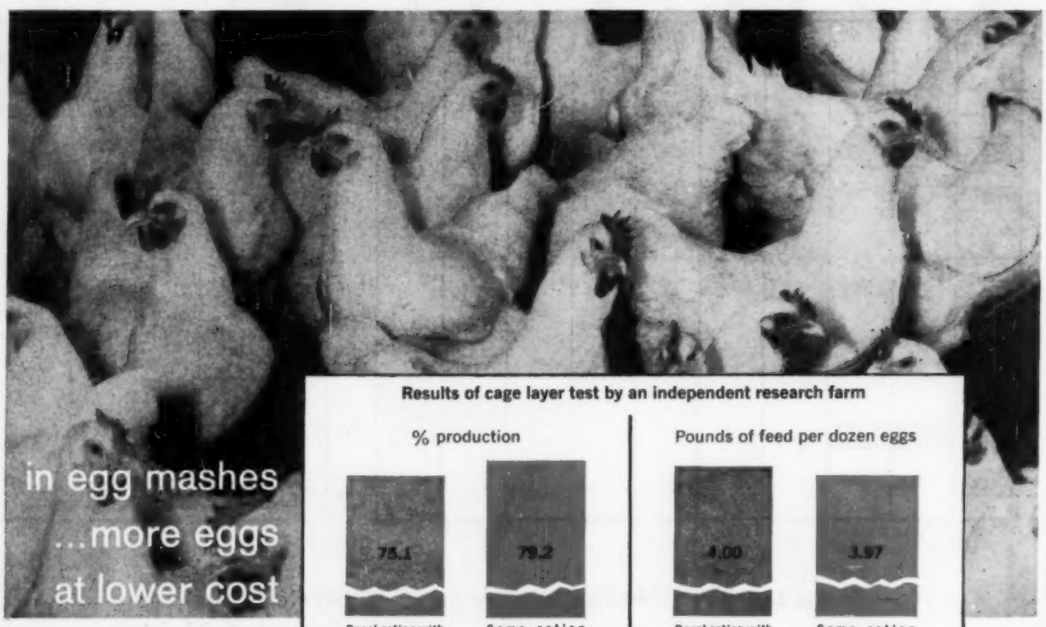
Room 1339
221 N. LaSalle St. Chicago 1, Ill.

NOW...improve production

with *Borden's* fermacto 400


in egg mashes
...more eggs
at lower cost
with
less animal
protein
Results of cage layer test by an independent research farm
% production
75.1
79.2
Basal ration with 50 lbs. "fish," 20 lbs. fish solubles per ton
Same ration minus "fish" and solubles plus 2 lbs. Fermacto 400 per ton
Pounds of feed per dozen eggs
4.00
3.97
Basal ration with 50 lbs. "fish," 20 lbs. fish solubles per ton
Same ration minus "fish" and solubles plus 2 lbs. Fermacto 400 per ton

only 2 pounds of Fermacto 400 per ton (all-mash basis), costing 25¢ — replacing 50 pounds of "fish" and 20 pounds of fish solubles — increased layers in daily production by 4.1% and increased profit per ton by $3.36.

also available, where convenience is a factor—

Borden's 300 — economical egg mash supplement containing Fermacto 400 plus all essential micronutrients. At 5 lbs. per ton in all-mash "layer" BORDEN'S 300 costs only $1.15 per ton of feed fortified.

Write for complete data . . .

THE *Borden* COMPANY • FEED SUPPLEMENTS DEPARTMENT, 350 Madison Avenue, New York 17, New York

the minimum wage and maximum hours provisions of the act shall not apply with respect to "any employee employed in agriculture."

Broad Application

The act is designed to be remedial and humane, and the general rule of construction of such legislation is that exemptions therefrom are to be strictly construed. On the other hand, the Supreme Court of the U.S. as recently as 1955 indicated that Congress intended the agricultural exemption to be broad in its application and liberally construed.

The case of Miller Hatcheries, Inc., vs. Boyer, 131 F. 2d 283 (1942), is the landmark case in which the U.S. Circuit Court of Appeals for the Eighth Circuit held that a commercial chicken hatchery located in a city and selling baby chicks to farmers and poultry raisers was engaged in the "raising of poultry" and therefore that its employees were within the agricultural exemption of the Fair Labor Standards Act. The language used by the court in the Miller Hatcheries case in its opinion was significant then and, I submit, is even more significant now in its application to grow-out contracts under integrated poultry projects. The court said:

"Congress may well have intended that hatchery operations in their now common relationship to poultry raising by farmers should be treated as so intimately and directly connected with farming activities as to constitute one of the exempt processes of agriculture."

Definition of Agriculture

The administrator of agricultural exemption in May, 1956, published an Interpretive Bulletin, part 780, subpart A of which deals with agriculture. The bulletin points out that the definition of "agriculture" in the act has two distinct branches. First, there is a primary meaning which includes farming and all its branches; and also a secondary meaning which includes operations outside the primary meaning which are performed either by a farmer or on a farm as an incident to or in conjunction with such farming operations. We have seen from the Miller Hatcheries case that the normal operations conducted by hatcheries are exempt under the agricultural exemption and this includes activities necessarily incident thereto. The hatcheryman is held to be a farmer and his hatchery a farm.

What happens when the hatcheryman changes into a grow-out operator, perhaps tied in by contract with egg suppliers on the one hand and a processor on the other as an integrated poultry project? It is recalled that the agricultural exemption applies to farming operations, and practices incident to or in conjunction with such farming operations performed by a farmer or on a farm.

I should make two things clear here. The first is that it is possible for an employer to be a farmer operating a farm with regard to certain of his activities, even though other activities may not come under the agricultural exemption. Secondly, with regard to such farming activities, Section 780.15 (a) (2) of the Interpretive Bulletin mentioned earlier makes it clear that the term "farmer" includes the employees of a farmer. Thus, hatchery employees employed exclusively in the usual hatchery operations considered in the Miller Hatcheries case would be exempt.

Similarly, anyone employed to work exclusively on "a farm" in connection with poultry production would be exempt even if he worked on several farms during the week. The Interpretive Bulletin specifically mentions employees engaged in inspecting and culling flocks of poultry.

Some employers may have men devoted exclusively to such work but many will not. If the employee does any other work during the work week covered by the act and not otherwise exempted, the wage and hour requirements will apply to him during that work week.

Feed Haulers

As can be seen, the problem for grow-out operators arises with regard to those employees who haul chicks out to the grow-out farmers or who haul feed and medicines to the grow-out farmers, or those who spend only part of their time on farms supervising the grow-out flocks, etc., and, it would also appear, those clerical employees whose time is devoted either totally or partially to such grow-out operations.

My research has indicated that to date there has been no square holding by any federal court that a grow-out program based on a flat fee or share contract, with ownership of the chicks in the grow-out operator rather than the farmer, was within the agricultural exemption of the act. The matter was involved somewhat on the periphery of a series of cases usually referred to as the Farmers Mutual Exchange cases. However, there was no clear decision on the point by the courts in those cases

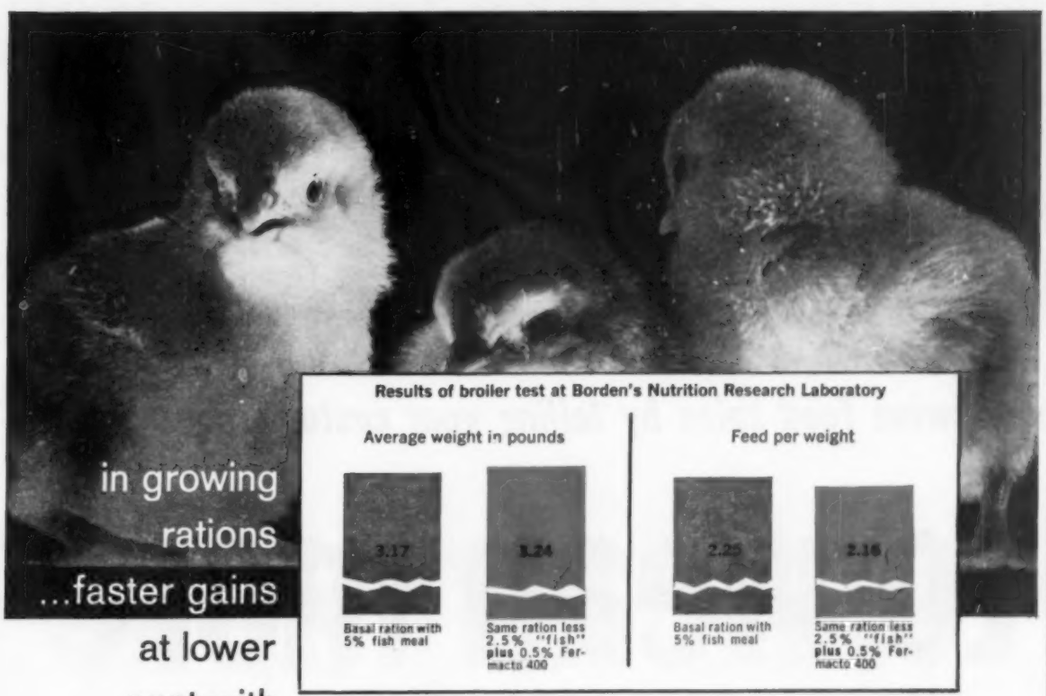
(Turn to page 24)

Bascom K. Doyle

VICE PRESIDENT—Bascom K. Doyle, Gulf manager for Pacific Molasses Co., New Orleans, has just been elected a vice president of the firm, according to an announcement from headquarters of the firm in San Francisco. Mr. Doyle joined Pacific Molasses in 1952, following assignments as a research economist on the marketing of blackstrap molasses for the sugar branch, U.S. Department of Agriculture, and for the Hawaiian Sugar Planters Assn. experiment station. Currently, Mr. Doyle is chairman of the blackstrap molasses pricing committee for the Louisiana Sugar Exchange.

while sparing fish factor(s)

the cost-saving multiple blend of fermentation factors for complete unidentified growth factor fortification


in growing rations
...faster gains
at lower cost with less "fish"
Results of broiler test at Borden's Nutrition Research Laboratory
Average weight in pounds
3.17
3.24
Basal ration with 5% fish meal
Same ration less 2.5% "fish" plus 0.5% Fermacto 400
Feed per weight
2.25
2.16
Basal ration with 5% fish meal
Same ration less 2.5% "fish" plus 0.5% Fermacto 400

only 0.5% of Fermacto 400 per ton (all-mash basis) — replacing 2.5% "fish" — cut the feed weight ratio from 2.5 to 2.16 and increased profit per ton by $6.75.

also available where convenience is a factor —

Borden's OMNI-MIX — newly concentrated blend of whey, fish, and fermentation factors fortified with all essential micronutrients.

BETTER FEEDS THROUGH RESEARCH

Laboratories and test farms at Elgin, Illinois

LONFOSCO Soft Phosphate with Colloidal Clay
Prepared by: Loncala Phosphate Co. High Springs, Fla.
Distributed by: Warren-Douglas Chemical Co.
1513-15-17 Burt St., Omaha, Neb.

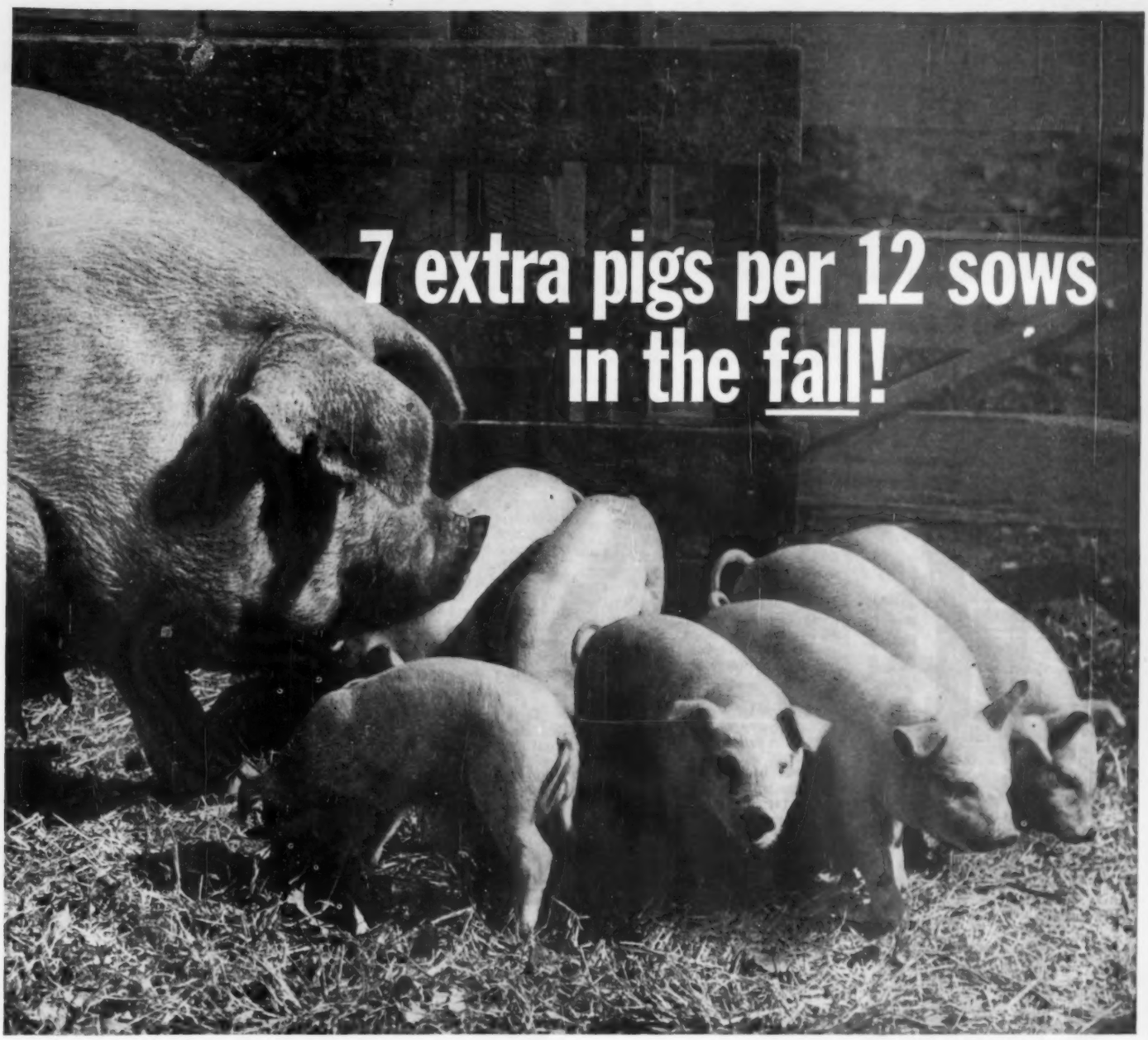
Cyanamid helps boost swine feed sales by telling your customers:

How to wean more

AUREOMYCIN®, incorporated in your good farrowing feeds for sows, can mean extra yearly returns for your hog producers!

This is a fact conclusively shown in 7 experimental trials held on 7 different farms in Iowa. 88 sows and their litters were involved in the experiments.

One half of these sows received no AUREOMYCIN at any time. The other half received farrowing feeds containing 200 grams of AUREOMYCIN per ton for



pigs per sow

7 to 14 days before and 7 days after farrowing. Then, these sows were placed on feeds containing 50 grams of AUREOMYCIN per ton until the pigs were weaned at 8 weeks.

Results showed 7% more pigs weaned from the sows fed AUREOMYCIN! This averages out to 7 more pigs per 12 sows. That's an *extra litter* and a significant profit picture for any hog raiser!

Cost of feeding AUREOMYCIN to 12 sows was approximately $26 for the entire feeding period. Sales value of the 7 extra pigs sold as feeders was $105. This resulted in a net extra return of $79. On the basis of two farrowings per year, this means an extra yearly return of $158.

Let *your* customers for swine feeds benefit by furnishing farrowing feeds containing AUREOMYCIN. Write for special bulletin giving more detailed results of these trials. American Cyanamid Company, Agricultural Division, New York 20, New York.

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OFFICIALS, DIRECTORS—New officers of the Tennessee Feed Manufacturers Assn. were elected at the annual convention recently in Nashville. Shown (left to right, in the first picture) are: George P. Moseley, Quaker Oats Co., Memphis, outgoing president; F. W. Greer, Security Mills, Inc., Knoxville, new president; W. B. Carden, Quaker Oats Co., Chattanooga; C. Turner Whitworth, Nutrena Mills, Inc., Memphis; D. B. Gambill, Barry-Carter Milling Co., Lebanon, Tenn., all vice presidents, and Charles H. Warfield, Nashville, association general counsel and executive secretary. Directors of the association are (left to right, second picture): W. D. Hudson, Jr., Cumberland Milling Co., Clarksville, Tenn.; M. E. Staed, Ralston Purina Co., Nashville; Q. D. Edmonds, Model Mills, Jackson, Tenn.; Lehman Keith, Hermitage Feed Mills, Nashville; Joe Pless, Pless & Sheahan, Memphis, and F. B. Langston, Langston Bag Co., Memphis. A member of the board not in the picture is Bruce Ballew, Farmers Mill & Elevator Co., Collierville, Tenn.

since the defendant employers relied principally upon either or both of the local retailing and retail establishment exemptions with regard to work not actually done on the grow-out farms proper.

Situation Not Covered

The Interpretive Bulletin on agriculture issued by the administrator does not seem to cover squarely the situation of the grow-out contracts made by a hatcheryman of the type we are discussing, although there are some comments which bear rather closely on the point. The bulletin states that "feeding, fattening and caring for poultry over a substantial period may constitute raising of poultry."

The question seems to narrow down to an inquiry whether the hatcheryman with regard to his grow-out activities is a "farmer" within the meaning of the act. The Interpretive Bulletin points out that the term "farmer" does not apply to an employer "merely because he employs a farmer or appoints a farmer as his agent to do the actual work." On the other hand, the bulletin states that "generally, an employer must undertake farming operations of such scope and significance as to constitute a distinct activity for the purpose of yielding a farm product," in order to be regarded as a "farmer." A grow-out program of a hatcheryman is perhaps such a "distinct activity."

"Suitcase" Farmer

Is a hatcheryman any the less a farmer with regard to his grow-out operations because he does not actually occupy the farm or farms where the grow-out birds are raised? It would seem that in this age of urbanization the answer would be in the negative since the concept of the "suitcase farmer" has found wide acceptance in our culture.

The Interpretive Bulletin points out "so long as the farming operations to which a farmer's practice pertains are performed by him in his capacity as a farmer, the exempt status of the practice is not necessarily altered by the fact that the farming operations take place on more than one farm or by the fact that some of the operations are performed off his farm." The bulletin also notes that the controlling consideration is whether the products were produced by the farming operations of the farmer who performs the practice rather than at what place or on whose land he produced them. It indicates that it is significant if the land is controlled by the farmer and devoted to his own use.

This control would be characteristic of most land involved in modern grow-out programs. The bulletin does, however, indicate that "the question of whose farming operations are actually being conducted in cases where they are performed pursuant to an agreement or arrangement, not amounting to a bona fide lease between the farmer who performs the practice and the land owner necessarily involves a careful scrutiny of the facts and circumstances surrounding the arrangement."

"Incidental" Operations

If it can be determined that the hatcheryman conducting the grow-out operation is a "farmer," then his employees delivering grow-out chicks and hauling feed and medicines to them and making trips to supervise management practices of such chicks on the grow-out farms, would be involved in secondary farming operations incidental to the primary farming business of raising poultry engaged in by the hatcheryman-farmer. As indicated in Section 780.20(g) of the Interpretive Bulletin, "transportation to the farm by the farmer of materials and supplies for use in his farming operations such as seed, animal or poultry feed, farm machinery or equipment, etc." amounts to a practice performed by a farmer and "thus truck drivers employed by a farmer to haul feed to the farm are engaged in 'agriculture'."

The Interpretive Bulletin that we have been discussing concludes with Section 780.23, dealing with "hatcheries." Under subsection (d) of that section, the bulletin indicates that "in some situations the hatchery also operates a feed store and furnishes feed for the growers. As in the case of the produce business operated by a hatchery, this is not an exempt activity and employees engaged therein, such as truck drivers hauling feed to growers, are not exempt."

A reading of the whole section indicates that this does not necessarily contemplate "growers" under a grow-out plan. The "growers" referred to are apparently the "farmer poultry raisers" referred to in sub-paragraph (b) of the same section, who furnish hatching eggs for the hatchery. Thus, there is no clear statement in the bulletin taking modern grow-out contracts out of the agricultural exemption.

A definitive determination of this question will perhaps have to abide further clarification of the Interpretive Bulletin or perhaps ultimately litigation in the courts. I might add that the Interpretive Bulletins do not have the force of law, but merely indicate the interpretation which the administrator will apply unless

(Turn to INTEGRATED, page 31)

SPEAKERS TABLE—The speakers table at the recent annual convention of the Tennessee Feed Manufacturers Assn. in Nashville included (left to right): Dr. O. E. Goff, University of Tennessee; E. C. McReynolds, University of Tennessee; Oakley M. Ray, American Feed Manufacturers Assn., Chicago; Webster Pendergrass, University of Tennessee; George P. Moseley, Quaker Oats Co., Memphis (outgoing president); Dr. Jonathan Keim, U.S. Department of Agriculture; Wendell Levine, former executive secretary of the association (he was presented with a scroll in appreciation for his service to the group), and L. C. Jacobs, director of the feed, seed and fertilizer division, Tennessee Department of Agriculture.

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The RELIABLE SOURCE for ALL YOUR NEEDS on:
• EUROPEAN BALER & BINDER TWINE—"Dutch King", "Volto", "Shuco", "Red Setter"
Also twine especially made for tying round bales
• MEXICAN BALER & BINDER TWINE—"Bulldog", "Modelo"
• DOMESTIC BALING WIRE—"Shuco"
• FARM SPECIALTIES—Grain Bins, Corn Cribs, Feeders, Gates, Bolster Hoists, Wagon Boxes
Volto
Dutch King
"If it's tied see Shuford"
751 Howard Street, EVANSTON, ILLINOIS

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- Liponizing cost reduced 60%
- Up to 3% better dress-out
- 16% protein finisher as good as 20%

Reprinted from FEEDSTUFFS *of September 6, 1958*

ESTROGENIC COMPOUNDS FOR CHICKENS

By William K. Warden, Robert K. Ringer, Lester F. Wolterink and Philip J. Schaible
Michigan Agricultural Experiment Station
East Lansing, Mich.

Early tests show that estrogenic compounds increase fat content of muscle tissue.

"In-the-feed" LIPAMONE eliminates cost of handling . . . as well as accompanying stresses and setbacks.

Considerable interest has developed in recent years in the application of hormones for quieting birds and improving the quality of poultry meat. As early as 1939, it was found that estrogen increased the fat content of muscle tissue. With the advent of relatively inexpensive and readily available diethylstilbestrol, more interest in hormone treatment of broilers developed. Lorenz (1943) observed the fattening effect of subcutaneous diethylstilbestrol (DES) implants in three-week-old cockerels. In most cases, workers have obtained no added weight gains from estrogenic treatment nor has feed efficiency been significantly affected.

More recently, it has been shown that dienestrol diacetate (Lipamone), an estrogenic compound, promotes a fattening effect similar to DES. Initially, the oral dose recommended for Lipamone was 1 lb. per ton or 31.75 mg. per pound of feed during the final fattening period. The advantages of feeding the estrogen are that it eliminates the cost of handling the birds necessary with pellet implantation, and the stresses encountered following handling.

Current tests on LIPAMONE are being conducted by (from left) Schaible, Ringer, Warden and Wolterink of Michigan Agricultural Experiment Station.

Dr. Robert K. Ringer, poultry specialist at Michigan State University, weighs birds prior to starting new LIPAMONE experiments.

TABLE 1. Rations, treatments and results at specified intervals.

		Control	Implanted two 15 mg. DES pellets	—Pounds Lipamone per ton— 1	⅓	⅛
% Protein—Calories/lb.	Starter	24-1025	24-1025	24-1025	24-1025	24-1025
	Finisher	16-1025	16-1025	16-1025	16-1025	20-1025
	Fattener	13-1062	13-1062	13-1062	13-1062	16-1025
Number of birds:						
Started at 5 weeks		64	64	64	64	64
Alive at 9 weeks		64	62	62	64	62
Alive at 13½ weeks		64	62	62	64	62
Weight of birds in lb., averages:						
At 5 weeks (both sexes)		1.51	1.51	1.51	1.51	1.51
At 9 weeks (both sexes)		3.06	3.20	3.07	3.19	3.26
At 13½ weeks (both sexes)		5.00	5.18	5.20	5.07	5.20
At 13½ weeks (males only)		5.67	5.84	5.77	5.66	5.85
At 13½ weeks (females only)		4.29	4.46	4.56	4.48	4.58
Feed consumed in pounds:						
From 0-5 weeks		123	123	123	123	123
From 6-9 weeks		316	355	329	343	326
From 10-13½ weeks		555	566	577	544	532
From 0-9 weeks		439	478	452	466	449
From 0-13½ weeks		994	1044	1029	1010	981
Feed efficiency:						
From 0-5 weeks		1.92	1.92	1.92	1.92	1.92
From 0-9 weeks		2.06	2.24	2.12	2.11	1.98
From 0-13½ weeks		2.98	3.24	3.00	2.97	2.86

TABLE 2. Abdominal fat deposition in birds treated as specified.

No.	Treatment	—Per cent protein—Cal./lb.— Starter	Finisher	Fattener	—Average abdominal fat— —Males— Grams	% of live wt.	—Females— Grams	% of live wt
1	Control	24-1025	16-1025	13-1062	89.0	3.39	75.1	3.65
2	DES pellets	24-1025	16-1025	13-1062	114.9*	4.37	115.0*	5.42
3	1 lb./ton Lipamone	24-1025	16-1025	13-1062	97.5	3.74	69.1	3.35
4	⅓ lb./ton Lipamone	24-1025	16-1025	13-1062	93.5	3.52	60.6	2.91
5	⅛ lb./ton Lipamone	24-1025	20-1025	16-1025	27.3**	1.03	45.9***	2.20

*Significantly more fat than all other treatments of males.
**Significantly less fat than all other treatments of males.
***Significantly less fat than DES treatment of females.

During 1957-58, an experiment was conducted to establish whether the desirable effects of hormonizing can be obtained with less Lipamone in the feed and whether feeding is as effective as implanting DES. Accordingly, levels of 1 lb., as well as ⅓ lb., of Lipamone per ton of feed were used in the feeding experiment; also broilers fed untreated feed were implanted with two 15 mg. DES pellets; one at the fifth and one at the ninth week of age. In addition, higher-protein finisher and fattener rations were used at the ⅛ lb. per ton Lipamone level.

Four replicated lots of 16 five-week-old, broiler chicks (8 males, 8 females—totaling 64 per treatment) were randomly allotted to floor pens with shavings as litter. The birds had been previously reared in electrically heated batteries with raised wire floors and fed an all-mash, high quality, starter ration containing 24% protein and 1,025 calories of productive energy per pound.

Results of growth, livability and feed utilization for 9-week-old broilers and for birds at roaster market age (13½ weeks) are shown in Table 1.

Since relative fat deposition in market-weight roasters might be an important consideration affecting price, a measurement of abdominal fat including that around the gizzard was made on the dressed carcasses. These results are shown in Table 2. Significant differences between treatments were determined by Duncan's (1955) multiple range test.

Save protein costs — when LIPAMONE is used in broiler feeds at ⅓ lb. per ton, a 16% protein finisher containing 1025 calories per lb. gave 9-week weights nearly equal to 20% finisher containing 1025 calories. (Contact us for full information.)

Better dress-out — abdominal fat in roasters averaged 50-75% less for birds fed LIPAMONE than birds with pellet implants.

Birds produced on 1/3 lb. of LIPAMONE per ton were equivalent to those produced by two pellet implants or by 1 lb. of LIPAMONE per ton.

Why pay meat prices for "waste" abdominal fat?

More ideal carcass—a more marketable carcass results when LIPAMONE at 1/3 lb. per ton is fed with a 20% protein finisher and a 16% fattener.

Although in most instances there was an increase in weights at broiler and roaster ages where Lipamone and DES were given, it would have required many more birds to make the differences statistically significant. Thus the data show that Lipamone, DES or a higher level of protein in the finisher and fattener rations do not significantly affect rate of growth or feed efficiency. The 1/3 lb. of Lipamone was equally as good as the 1 lb. and all hormone treatments were equivalent.

DES implants significantly increased the amount of abdominal fat. Lipamone did not affect the amount of abdominal fat except at the 1/8 lb. per ton level on higher-protein finisher and fattener. In this case the amount of fat was significantly reduced in the males, not as markedly in the females. The effect may be simply due to the decreased C/P ratio rather than to Lipamone. No carcass grades were obtained. However, dressed weights of roasters on the higher and lower protein rations were similar. This suggests that a 20% protein finisher and a 16% fattener would produce a more ideal carcass for the market than the lower levels of protein used in this experiment.

LITERATURE CITED

Duncan, D. B., 1955—Multiple range and multiple F tests; Biometrics, 11:1-43.

Lorenz, F. W., 1943—Fattening cockerels by stilbestrol administration; Poultry Sci., 22:190-191.

At Michigan State University, recent findings substantiate earlier evidence that LIPAMONE is effective at reduced levels (from originally recommended 1 lb. per ton to 1/4 lb. per ton).

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New federal inspection rules for poultry are now in effect. Adding LIPAMONE to the feed is a practical approach to desired quality in roasters and broilers. Here is extra finish and bloom that finds a ready market. No stresses or shock due to handling. No "misses," since all birds are treated in the feed. LIPAMONE calms birds . . . picking is no problem.

67% less waste fat

Recommended feeding schedule

Type of Bird	Lbs. LIPAMONE per ton	% Dienestrol diacetate in feed	Feeding period
Broilers	⅓	0.0023	Last 4-6 weeks
Roasters	⅓	0.0023	Last 6-10 weeks
Squab Broilers	1	0.007	Last 3 weeks
Turkey Fryers	1	0.007	Last 3 weeks

For best results, a 60-65 to 1 calorie-protein ratio is advisable.

LIPAMONE for broilers now only 1¢ per bird

LIPAMONE for roasters now only 3¢ per bird

(New lower protein levels now suggested)

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White's

New Type of Corn Offers Wide Variety Of Industrial Uses

CHICAGO—Development of a new type of corn with "extraordinary possibilities in the production of new types of starches with application in many industries, and of economic benefit to the nation's corn growers," has been announced by National Starch Products, Inc., and American Maize Products Co., co-venturers in the project.

At a recent news conference in Chicago, officials of the two companies said new avenues of research now being explored may be regarded as a scientific break-through of economic importance to corn growers, to industries which will be able to improve present products and develop new ones through the chemical processing of starch from the new type of corn and the ultimate corn requirements and sales volume of the two firms.

Preliminary research estimates of the application of the starch manufactured from the new corn, known as amylomaize, indicate the following possibilities in the near future:

Use in water soluble transparent film wrapping material for frozen foods, meats and other edible products as an advance in "built-in-maid" service. The housewife will be able to cook her meals without removing the wrappings since the wrapping materials will dissolve as the contents are cooked and will be completely digestible.

Use as a packaging material for water-dispersible products such as detergents, dyes, insecticides and industrial chemicals as replacement for more expensive synthetic materials now being used.

Use in non-water-soluble types for the coating and surface treatment of paper and paper products.

Among other uses, officials of the firm foresee use of the new starches as an integral part of paper, as a permanent finish for fabrics, in low-cost fabrics made from a combination of cotton and corn starch and in structural materials such as wall board and building board.

The officials said the economic appraisals are suggested by the similarity of the amylose and cellulose. Currently, the amylose content of starch from the newly-developed corn is 55%. As the amylose content of the starch approaches 100% through genetic research now under way, it was indicated that product applications will be expanded. These new applications will expand uses for the nation's corn crop.

Work on the project has been under way since 1953 with Bear Hybrid Corn Co., Decatur, Ill., and the U. S. Department of Agriculture Northern Research Laboratory, Peoria, Ill.

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Earn up to $1.80 profit per bag by mixing your own brand of feed with the BROWER MIXER . . . the extra profits soon pay for it! WHIRLS the ingredients instead of just tumbling them . . . mixes a perfect blend in about 10 minutes . . . fast, economical! Built for years of trouble-free service. Five sizes. World's Largest Selling Mixer!

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Use Feedstuffs WANT ADS for RESULTS

Wants "Egg Testing" For Cottonseed Meal

DAVIS, CAL.—Egg producers have been warned by a University of California poultry husbandman to check the labels on their feed bags before purchasing new supplies.

If the feed contains cottonseed meal, said Dr. C. R. Grau, it should be labeled "egg-tested." He said only meals with the words "egg-tested" on the label are safe to feed layers.

"It has come to my attention," he said, "that some lots of cottonseed meal now being sold contain too much available gossypol. It would be unfortunate if cottonseed meal should get a bad name as a feedstuff simply because a few manufacturers are not adequately checking the quality of the meal before use."

Dr. Grau explained that the term, "degossypolized," does not mean that all of the gossypol has been removed from the cottonseed. It only means that the gossypol in the meal is at a level low enough to be safe to feed growing birds—but not necessarily laying hens. On the other hand, "egg-tested" cottonseed meal is safe for both purposes, he said.

Eggs from chickens fed meal with too high a level of gossypol probably show mottling and discolored yolks after a period of holding.

Fortunately, said Dr. Grau, more and more firms are testing meals before use. He said poultrymen should insist that they get nothing but "egg-tested" cottonseed meal in laying mash if they want to avoid trouble with mottled and discolored yolks.

DECLARES DIVIDEND

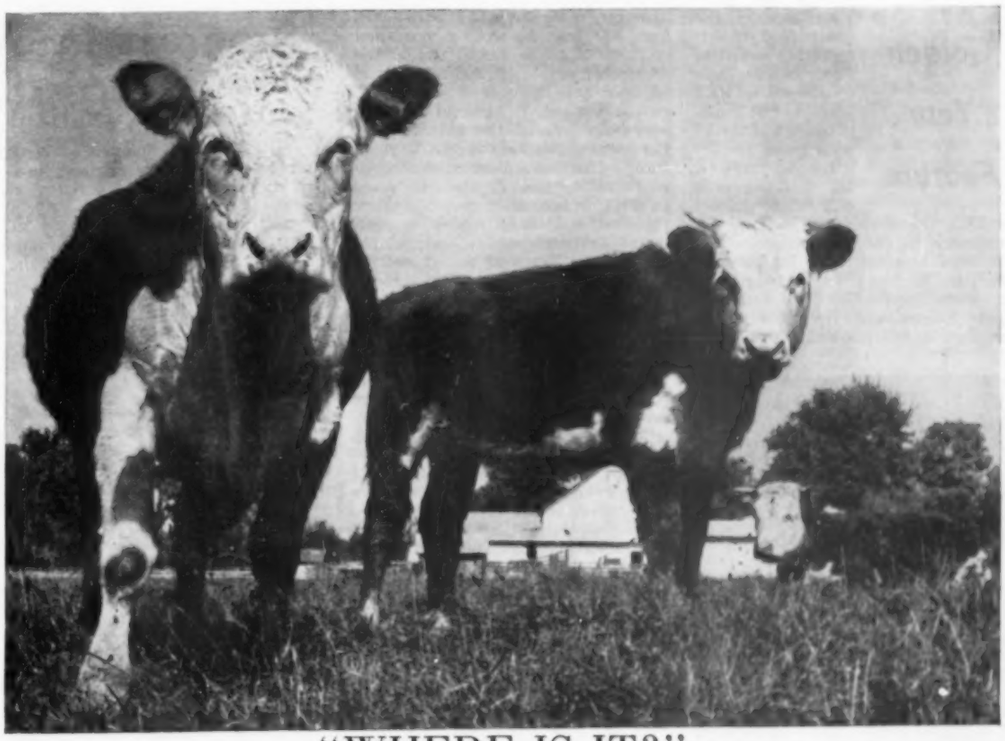
NEW YORK—A dividend of 5¢ per share was declared recently by Commercial Solvents Corp. on the outstanding common stock of the corporation, payable Dec. 29, 1958, to stockholders of record at the close of business on Dec. 5, 1958.

Minneapolis Appraisal Companies Consolidate

MINNEAPOLIS—Patchin Appraisals, Inc., Minneapolis, has announced consolidation with the Universal Appraisal Co., Inc., also of Minneapolis. Universal Appraisal has been making industrial and commercial appraisals in the Upper Midwest states for the last 21 years.

The announcement said Don S. Stebbins, Universal president, has joined Patchin Appraisals as a vice president. All clients of Universal will continue to be served by Patchin.

"Patchin Appraisals, Inc., is the only fully-staffed appraisal organization which is locally-owned and independently-operated," the announcement said. "Organized six years ago by George Patchin, president, it is currently engaged in making valuations of industrial and commercial property in 36 states."



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Highlights of the Past 50 Years in Swine Nutrition and Feeding

Experiment stations, feed manufacturers and their suppliers, veterinarians and extension workers have all made great contributions to swine feeding progress. Research results have been incorporated into feeds and service, and the net effect has been one of closing the gap between research and application.

By Dr. L. E. Hanson
University of Minnesota

EDITOR'S NOTE: The accompanying article is another in a series being published in Feedstuffs as part of the observance of the feed industry's "Golden Year." The 12 months following the American Feed Manufacturers Assn.'s 50th convention in May, 1958, were designated as the Golden Year, focusing attention on industry and feeding progress. In this connection, Feedstuffs is publishing a series of articles on nutritional advances and feed industry operations. This article, by Dr. L. E. Hanson, covers important advances in swine nutrition and feeding. A special part of the presentation, too, is data from a feeding demonstration showing the results of progress made in swine nutrition knowledge.

A Golden Year Feature

On this golden anniversary of the American Feed Manufacturers Assn., it seems appropriate to consider some of the developments in nutrition which have been factors in the growth and present status of the great feed manufacturing industry. Since others have considered other species, this discussion will deal with swine.

Having raised his first pig in a 4-H Club project in 1923, the writer has had the opportunity to observe swine feeding practices at close range for most of the past 35 years. In many aspects of swine production, progress has been tremendous. In some areas, progress is less marked.

Dr. L. E. Hanson

AUTHOR—Dr. L. E. Hanson is head of the animal husbandry department at the University of Minnesota, St. Paul. Dr. Hanson, a native of Minnesota, was graduated with distinction from the University of Minnesota Institute of Agriculture in 1936. He earned his master's degree at Cornell University in 1937 and his Ph.D. there in 1940, in animal husbandry. He joined the Minnesota staff in 1950 after teaching and conducting research at the University of Nebraska from 1940 to 1950. He rose from instructor to full professor during that time. Dr. Hanson became head of the Minnesota animal husbandry department in 1956. His specialty is swine nutrition and management. He heads most of the university's swine feeding research and has conducted a number of significant studies of baby pigs, gilt and sow feeding and management. One of his projects attracted nationwide attention in 1953. It was a comparison of feeding results with a ration typical of 1910, a ration common in 1930 and a modern, well balanced ration. Dr. Hanson is a member of several technical and other groups.

Many school boys dislike history and even some college students think anything more than five years old is ancient history and of little significance. This trait of looking toward the future is highly commendable and is essential if progress is to be made. However, man can and should learn from the past as well if maximum progress is to be made. Unless the researcher pays attention to the past he may well discover a "new fact" that is new only to him and to others who have ignored the past records. For example, within the past 10 years many of us have discovered the advantages of farrowing stalls for sows. In 1914 a successful swine breeder published a book in which he illustrated a similar device and pointed out that he had used this device for many years and found it to be of great value in saving pigs.

As Dr. Bechtel has pointed out (Feedstuffs, June 21, 1958), much of the foundation for good nutrition was laid in the 19th century. Protein, carbohydrates, fats, salts and water were recognized as constituents of feedstuffs. More than half of the amino acids which result from protein hydrolysis were isolated in the past century and only two of those we class as essential for the pig were discovered during the past 50 years. The importance of calcium and phosphorus was recognized as was the fact that all proteins are not of equal value in nutrition. Iodine was discovered in the thyroid gland in 1895, and the early work that led to the discovery of vitamins was getting underway.

Swine Feeding Recommendations 50 Years Ago

In the preparation of a book 50 years ago, a breeder wrote to each experiment station and asked for details of the best and most economical rations for swine of various ages. Specialists from 20 stations replied. All stressed the importance of good legume or rape pasture. For weanling pigs several Corn Belt stations replied that corn, good legume pasture and water were the most economical combination. In dairy regions, most of the recommended mixtures were skimmilk, corn and shorts. Tankage was suggested if milk was unavailable. The Mountain States included barley, and Illinois included ground soybeans in the suggested mixtures. Slop feeding was a consistent recommendation. Wood ashes, charcoal and salt were recommended as minerals.

Most of the feedstuffs commonly used today were available by the same name for feeding in 1908. Most of them had been fed in some form of feeding experiment in Europe, Canada or the U.S. The most important exception was soybean oil meal, which is primarily a development of the past 30 years in the U.S.

Production of market pigs was divided into two phases beyond weaning (at 8-12 weeks)—a growing period and a fattening period—and many, if not most, market hogs were fed to relatively heavy weights. Animals intended for the breeding herd were not fattened. Pig production was mostly on a one-crop per year basis so that advantage could be taken of pasture during the growing period. Many pigs did not go to market until they were 8 to 12 months of age.

Besides the slow and generally inefficient gains obtained, disaster frequently overtook the swine producer. The importance of sanitation was largely unrecognized. Cholera frequently reached epidemic proportions

• • •

Progress in Swine Nutrition 1908 vs. 1958

In 1953, we conducted a feeding demonstration at the University of Minnesota to show the progress made in swine nutrition. In that demonstration the control pigs were fed as many, if not most, farmers fed pigs 50 years ago when they had no milk available. This past fall another feeding demonstration was conducted by R. J. Meade of Minnesota in which the "1908 ration" was based on 1908 nutritional knowledge, rather than practice. The pigs fed were displayed at the International Livestock Exposition in Chicago as part of an exhibit commemorating the golden anniversary of the American Society of Animal Production.

The pigs used were crossbreds resulting from the rotational crossing of three inbred lines developed at this station. From the start of the first of these lines 21 years ago, selection has been based on litter size, growth rate, feed efficiency and carcass quality.

The 1908 ration fed was composed of ground corn, linseed oil meal, wheat middlings, ground limestone and salt. The 1958 ration was a modern, high energy ration composed of corn, soybean oil meal, steamed bone meal, trace mineralized salt (high zinc) and a vitamin-antibiotic mixture. The results are summarized in the table below. A sample of the pigs, being inspected by three staff members at the conclusion of the test, is shown in the accompanying picture. Dr. R. E. Comstock and W. E. Rempel are specialists in animal breeding and took part in the research which led to the development of the inbred lines. Dr. Meade is a specialist in swine nutrition and supervised the feeding demonstration.

Cumulative Progress in Swine Nutrition, 1908-1958

Ration Fed—	1908	1958
Number of pigs	3	3
Average initial weight, lb.	60	58
Average final weight, lb.	109	164
Average daily gain, lb.	0.94	2.04
Feed per pound gain, lb.	4.42	3.15

The feed efficiency data obtained are biased in favor of the 1908 ration, because time did not permit feeding the pigs to the same final weight. There is further bias in that the "1908 ration" pigs were fed modern rations until they were placed on this test. It is clear, however, that substantial progress in swine nutrition has been made.

This picture shows a comparison of 1908 and 1958 rations. The professors are (left to right): Drs. W. E. Rempel, R. J. Meade and R. E. Comstock of the University of Minnesota. The pig on the left was fed a modern, high-energy ration. The pig on the right was fed a ration containing the same amount of protein but imbalanced with respect to amino acids, deficient in some vitamins and containing no antibiotic. (University of Minnesota photo.)

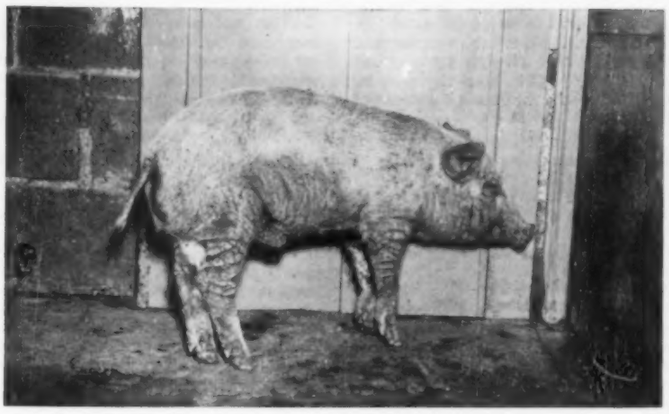


FIGURE 1. This pig developed parakeratosis after 28 days on feed. The ration was well balanced except that it contained 1.4% calcium. Net gain, 4 lb. in 28 days. (University of Minnesota photo.)

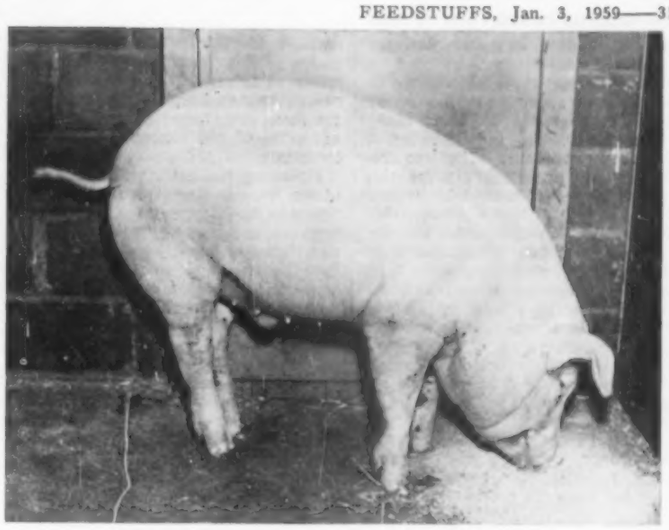


FIGURE 2. The same pig shown in Fig. 1, 41 days later. On the day of the first photo, 20 mg. of zinc was added per pound of feed. The basal ration was continued. (University of Minnesota photo.)

in some areas. In the northern regions of the Corn Belt, many litters were lost some years due to what is not known as iodine deficiency. "Thumps" was a common ailment in pigs farrowed indoors. Fall farrowed pigs were difficult to raise unless they were born early enough to have the benefit of pasture for a time before winter closed in. A variable number of runt pigs were present in nearly all herds.

During this time many breeders were indulging in the fad of "hot blood" types, and farmers' pigs were becoming shorter and thicker and low in fertility. There was little in the way of communications between the experiment stations and the farmers, and most farmers were unaware of the research findings of the experiment stations.

From 1908 to 1958

Protein: Pioneer investigations by several groups of workers led to the concept of essential and non-essential amino acids in nutrition. The work of Osborne and Mendel, reported in 1914, showing that the deficiencies of certain proteins (including zein, the principal protein in corn) for growth could be corrected by the addition of missing amino acids seemed to crystallize this concept. Subsequent studies by many others soon led to the realization that the value of a protein in the nutrition of the pig is related to its amino acid composition. Lacking good methods for analyzing the amino acid content of feedstuffs, improvement in protein nutrition of pigs was obtained by innumerable feeding trial studies. In these studies the adequacy of various feedstuffs in supplying the needed amino acids deficient in corn and other grains was measured. With the benefit of hindsight it is now clear that many of these studies from 1915 to about 1940 were measuring not only the adequacy of the protein but also the vitamin contributions of these feeds to the total diet.

Improved techniques for the assay of amino acid content of feeds came in 1941 and 1943, and this led to many studies whose results have been published during the past 12 years. Modern amino acid nutrition started in 1930 with the classical studies by Rose and coworkers at Illinois of the requirements of the rat. These were followed by studies of others with the chick, and during the past 10 years the amino acid requirements of the pig have been estimated largely through the work of the Cornell, Purdue and Illinois stations.

The crude protein or digestible crude protein requirements of pigs based on specific combinations of feeds were studied by many workers during the period 1925-1945. Following the discovery of vitamin B_{12} in 1948, protein requirements were reevaluated and estimates of requirements were reduced. Thus, today a ration based on corn and soybean oil meal, properly supplemented with minerals and vitamins, need not contain more than 14-16% crude protein for 40-lb. weanling pigs nor more than 12% protein for pigs weighing from 100 to 200 lb. and fed in dry lot.

Soybean Oil Meal: "No other plant in the U.S. grown so little at this time as the soybean is so full of promise to agriculture, especially to animal husbandry." These prophetic words were written in 1910 by Henry in "Feeds and Feeding." Soybean oil meal was first produced in the U.S. in 1915. Production increased slowly, and prior to 1930 less than 50,000 tons of meal were produced annually. The effect of heat on the nutritive value of the beans was first shown in 1917. Cooperative studies during the 1930's, by the workers at Wisconsin, Cornell and Ohio and the soybean processors and equipment manufacturers demonstrated the importance of time, temperature and moisture in processing. These studies established the foundation for the efficient commercial processing of the high quality soybean oil meal produced today.

By 1944 the tonnage of soybean oil meal excelled that of all other high-protein feedstuffs. This year it is estimated that 10 million tons will be produced, which is about 60% of our total national supply of high protein feeds. Recent studies show that soybean oil meal is superior to fish meal and to meat and bone scraps as a source of supplementary amino acids in corn rations for pigs. It is fortunate that our major source of supplementary protein for swine is such an excellent feed.

Minerals: From 1908 to 1920 several workers studied the value of various sources of calcium and phosphorus for pigs. Following the discovery of vitamin D in 1922 many studies were made to assess the calcium and/or phosphorus requirements of growing pigs. These studies were reported between 1933 and 1941. The Kansas station found the minimum requirements to be near 0.4% Ca and 0.3% P when the ration contained adequate D. In 1955 a thorough restudy of requirements was made by the Iowa station, and they reported the optimum requirements to be 0.8% Ca and 0.6% P for pigs from 25 to 100 lb. with slightly lower levels for pigs from 100 to 200 lb.

The recently recognized problem of parakeratosis in pigs has demonstrated the hazards of feeding excessive levels of calcium (See Figure 1), and other studies first reported in 1955 have shown that zinc is required by the pig (See Figure 2). These studies have shown, too, that calcium and zinc are interrelated.

In 1923 British workers showed that "thumps" in baby pigs was an iron-deficiency anemia. Subsequent studies at Wisconsin showed that copper as well as iron was required by the pig. Other studies at Wisconsin and Illinois showed that the feeding of iron and copper to the sow would not prevent anemia in baby pigs. Studies at many stations between 1920-1930 resulted in the development of practical solutions for this anemia problem. Nevertheless anemia continued to be a serious problem in swine production during the past 20 years. One can only conclude that the methods of prevention worked out 30 years ago were not satisfactory to the swine producers, or that the problem persisted because anemia is an insidious disease and much damage is done before the producer is aware of the problem. Perhaps the recent development by the British of an injectible iron compound will finally solve the anemia problem. Kernkamp reported the first American data on its use in 1957 and several stations are studying its value at the present time. Iron and copper nutrition has been a problem only in suckling pigs.

In 1917 the Montana station demonstrated the cause of the hairless pig malady (goiter)—iodine deficiency. Wisconsin workers soon confirmed these findings. Iodized salt was suggested as a preventive, and later methods were developed for stabilizing the iodine in the salt. Iodine deficiency is an area problem, but its occurrence is rare today due to general use of iodized or trace mineralized salt in swine and other livestock rations.

During more recent years it has been demonstrated that pigs require manganese, potassium and magnesium, but most common rations are considered adequate. No one has succeeded in demonstrating a need for added cobalt in swine rations which are adequate in B_{12}. The toxicity of fluorine and selenium when present in swine rations has been demonstrated. However the most recent studies indicate that selenium may be an essential element for swine, in very minute amounts (0.1 ppm or less).

Vitamins: In 1913 scientists at Wisconsin and at Yale furnished definite proof for the existence of vitamin A and its specific function in growth. The discovery that yellow corn has vitamin A value whereas white corn has little or none was reported in 1919. Many investigators then studied the feeding value of white and yellow corn and confirmed the initial report. Today white corn is grown only by a few farmers for special uses in industry. The relationship of yellow color in many vegetable foods with vitamin A potency was noted in 1919, and proof that the animal body trans-

FIGURE 3. Three- and eight-week-weaned pigs at 23 weeks of age. The pigs in the left pen were weaned at eight weeks. From 9 weeks to 23 weeks, they gained an average of 10 lb. more per head and required 7% less feed per pound of gain than those weaned at three weeks (right pen). These differences are not apparent in the photo, nor were they apparent in visual inspection of the pigs. (University of Minnesota photo.)

forms carotene to vitamin A was furnished in 1929.

A seven-year study of vitamin A deficiency in swine was reported by the Kansas station in 1928. Many others also studied and described A deficiency symptoms. The requirement of the weanling pig for this vitamin has been studied by several groups from 1922 to the present. One of the most thorough studies was one reported by the California station in 1937, and their findings are the basis for general recommendations in swine feeding today. Very recently the Cornell and Iowa scientists have reported the A requirements of baby pigs. Over the years the principal sources of provitamin A in swine rations have been yellow corn, legume pastures and hay and dehydrated alfalfa meal. Fish oils have been used extensively as a source of A in manufactured feeds. A relatively recent development has been the production of high potency, dry, free-flowing stabilized vitamin A supplements.

That vitamin A and D were two different vitamins was proven in 1922, six years earlier Hart and McCollum had reported that feeding of alfalfa hay prevented stiffness in pigs. In 1924 it was shown that certain foods could be made antirachitic by exposure to ultra-violet light. This and other studies thus furnished the explanation for the antirachitic potency of sun-cured hay and sunshine per se. Cod-liver oil was used as a specific cure for rickets long before vitamin D was discovered. From 1925 to 1939, many studies were made on the value of cod-liver oil in swine rations. The pig's requirement for dietary vitamin D has been shown to be dependent on the level of calcium and phosphorus, the ratio of Ca:P and the presence or absence of direct sunlight. Studies have also shown that white pigs may store more vitamin D than colored pigs, if exposed to sunlight. It also appears that there may be breed or strain variations among pigs as to the need for this vitamin. It has been shown that D_3 is utilized by the pig as well as D_2.

The only common feed sources of D are sun-cured forages and some fish meals. Fish oils and irradiated yeast have generally been used as supplements.

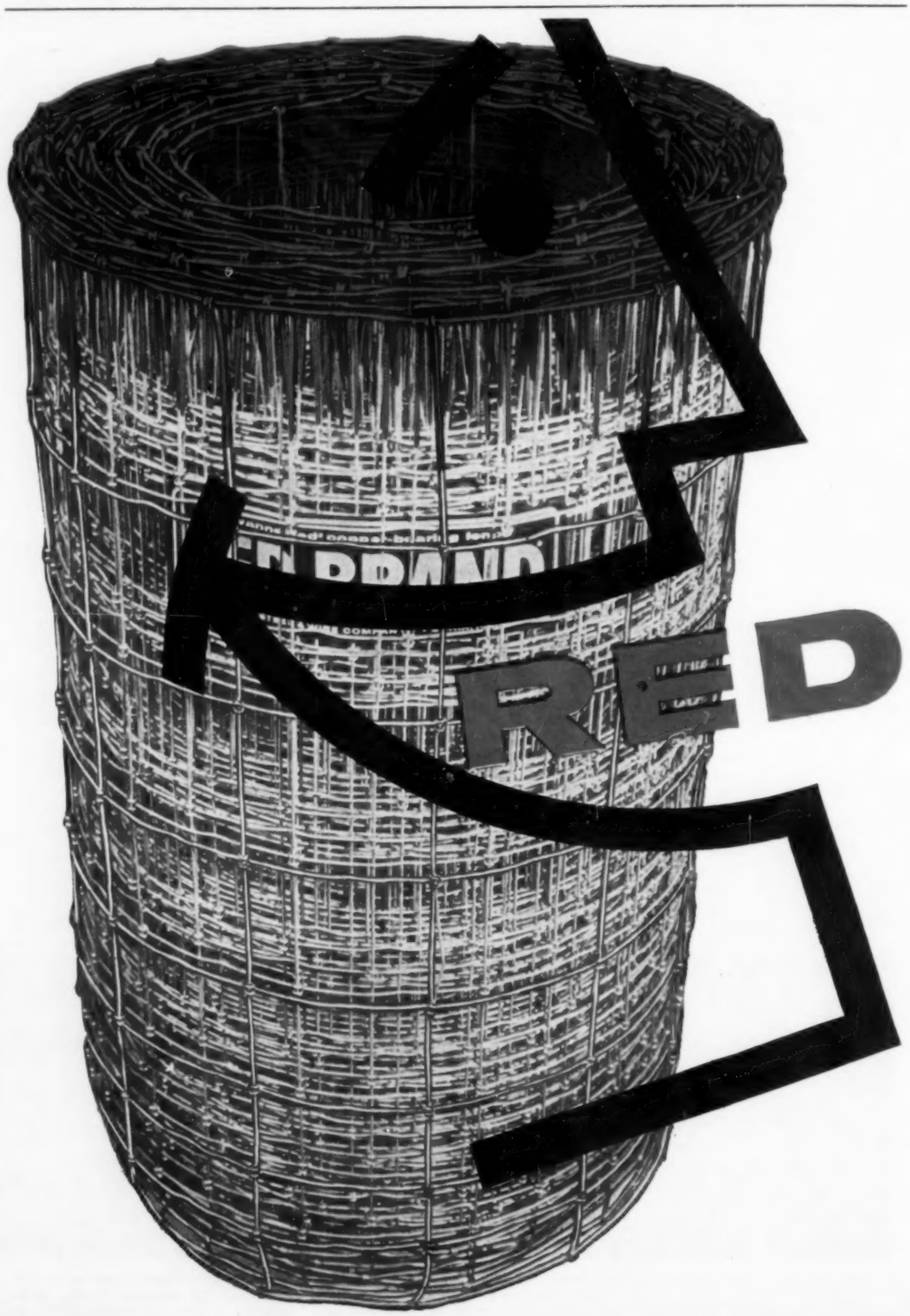
From the water-soluble growth factor named water-soluble B in 1916 there has grown a large number of specific vitamins generally labeled today as the B-complex. A chronology of these vitamins was given by Dr. Bechtel (Feedstuffs, June 21, 1958) so will not be repeated here. Generally studies concerning the pig's requirement for these vitamins have followed studies with chicks and rats. Thus these studies are concentrated during the past 20 years. Pioneers in this area of swine research included Chick and associates of England, Hughes of California, Ellis and coworkers of the USDA and Wintrobe and associates of the Johns Hopkins and Utah medical schools. These workers described the clinical symptoms of the various vitamin deficiencies and the California and USDA workers made estimates of the growing pig's requirements of thiamine, riboflavin, niacin, pantothenic acid and B_6. Many workers have contributed to our present estimates of the vitamin content of feedstuffs.

Following the early work, contributions to our knowledge of the B vitamins have come from numerous workers, particularly those at Michigan, Illinois, Iowa, Washington and the USDA. These studies have included investigations with baby pigs and qualitative studies of brood sow requirements. On the basis of our present knowledge of the vitamin content of feedstuffs, thiamine and B_6 should be adequately supplied by most combinations of ordinary feedstuffs. Riboflavin and pantothenic acid deficiencies can and do occur with some rations fed in dry lot. Niacin deficiency has not been reported when barley was the grain used in the basal ration, but it has been reported with corn rations.

Choline, biotin and folic acid are not considered to be problems in formulation of rations for weanling and older pigs. The choline requirement of the baby pig has been shown to be affected by the methionine content of the ration.

The story of vitamin B_{12} is one of the most interesting in the history of nutrition. The story begins with a report published in 1926 which showed that liver therapy was effective in the treatment of pernicious anemia. The climax came in 1948 with almost simultaneous reports by Rickes and coworkers of Merck Laboratories and by Smith of England of the isolation of B_{12}. In the intervening 22 years workers in many areas of biological science including medicine, bacteriology, chemistry, various areas of animal nutrition and others were actively pursuing this elusive unknown. As is well known, soybean oil meal was a prominent constituent of the diets used in animal nutrition studies from 1938 to 1948 and in subsequent studies. The discovery of B_{12} its commercial production and ready availability have increased the usefulness of soybean oil meal in swine rations in a very significant manner. Studies of the early B_{12} feed supplements in rations led to the recognition of the value of antibiotics in swine rations.

Feed Additives: The first report of the "growth stimulating" effect of an antibiotic or an arsonic acid was made in 1946 (with poultry). The antibiotic report largely went unnoticed. Three separate reports on swine published in the spring of 1950 by Jukes et al, Luecke et al and Carpenter provided the first evidence of the value of specific antibiotics in feeds for growing pigs. These results stimulated a tremendous research effort that undoubtedly included most of the experiment stations in the U.S. and laboratories in several other countries. Antibiotics were quickly accepted by swine producers following their introduction because the results obtained on many farms and in many experiment stations bordered on the miraculous. Chlortetracycline,



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oxytetracycline, procaine penicillin and bacitracin have been the most frequently used antibiotics. Streptomycin has been used to a limited extent. Combinations of two antibiotics have also been sold for feed use. Many other antibiotics have been tested and found of little value for feed use. New antibiotics are being developed and tested.

The mode of action of antibiotics has been studied extensively, but the question has not been resolved. On the basis of published data it appears that the favorable effects are due to selective action of the drugs upon the microorganisms of the digestive tract. The writer does not believe that antibiotics have a true growth stimulating effect but their use permits the pig to demonstrate more fully his genetic capacity for growth by controlling organisms which are harmful to him. Thus, it is not surprising that data obtained are variable both with respect to rate of gain and to feed efficiency. The beneficial effects of antibiotics have generally varied inversely with the enteric conditions prevailing in a given herd.

The early work with the arsonic acid 3-Nitro was continued, and it was shown in 1949 that this drug could be added to feed to increase gains in birds. The first swine studies were reported in 1951. The two most commonly used arsonic acids since that time have been 3-Nitro-4-hydroxyphenyl arsonic acid (3-Nitro) and arsanilic acid. Within the last year reports have appeared of another arsenic-containing compound being used in swine feeds, arsenosobenzene. The arsenic compounds have not received nearly as much research attention as the antibiotics. Studies with swine indicate that the arsenicals exert their action in a manner similar to the antibiotics. On the average they have not been as consistent as the tetracycline antibiotics in increasing live weight gains. However, they are more effective against swine dysentery than the antibiotics, and hence combinations of an antibiotic with an arsonic acid have come into use.

The nitrofurans, particularly nitrofurazone and furazolidone have become a part of the swine feeding picture within the last few years. However, the amount of published information regarding their use in swine feeds is quite limited as yet.

Overall, the antibacterial agents have been a real boon to the swine producer. Their use has been of particular value in rations for baby pigs and to a degree has made possible the early weaning of pigs on a fairly practical basis. Their usefulness in rations for breeding animals is questionable. None of them are satisfactory substitutes for a good sanitation program. Rather they should complement that program.

Other Developments: In 1914 Evvard of Iowa began promoting the idea of self-feeders and the free-choice feeding of pigs. The idea was studied in earnest by many other stations, and by 1930 slop feeding was rapidly becoming a thing of the past in commercial operations.

Fifty years ago pasture was indispensable. The cumulative knowledge regarding nutrient requirements, the development of high quality soybean oil meal in quantity and the commercial development of low cost vitamin supplements has made pasture unnecessary in the feeding of market pigs. Many producers are now shifting their feeding operations from pasture to concrete floors, and this practice will grow.

In the late 30's and during the 1940-50 decade small numbers of baby pigs were raised on laboratory diets or high milk diets in studies of various nutritional problems. Following the discovery of the effectiveness of antibiotics, feed formulas high in milk were developed for liquid feeding of pigs weaned at a few days of age. Excellent results were secured in laboratory studies. Under farm conditions these preparations were less successful and less economical, and they were not generally accepted. In 1953 Canadian scientists reported the successful rearing of pigs weaned at 10 days, and a commercial firm reported the successful rearing of pigs weaned at 10 lb. In both studies the pigs were fed dry diets. In 1954 the Iowa workers reported the successful rearing of pigs weaned at 7 days and fed on dry formulas. The same year the Minnesota station conducted studies with several hundred pigs weaned at 21 days and fed various dry starters. Excellent results were obtained. Subsequently a direct comparison was made of 3-week and 8-week weaning. The pigs weighed essentially the same at 9 weeks whether they were weaned at 3 or at 8 weeks. However, from 9 weeks to 23 weeks of age (market weight) the early weaned pigs required 7% more feed per pound of gain, and they averaged 10 lb. lighter at the end of the experiment. See Fig. 3. Subsequent studies failed to reveal the cause of this post 8-week slump of the early weaned pigs.

Numerous studies have been made by others during the past four years with variable results. There is a trend toward earlier weaning today, but the practice of weaning at three weeks or less is not in general use.

For the past 10 years the nutrient requirements of baby pigs have been studied at many laboratories. The results obtained in these and in early weaning studies are being applied by the feed industry in the manufacture of prestarters and starters. The net effect has been a noticeable increase in average weaning weights obtained on the farm.

Swine Feeding Progress

Progress which has been made in the results of swine feeding is illustrated in data accompanying this article.

Credits for this progress go to hundreds, perhaps thousands of workers in numerous areas of endeavor. Most of the basic discoveries have come from well trained, skillful persons working in the areas of science basic to the field of animal husbandry. The applied research which has made

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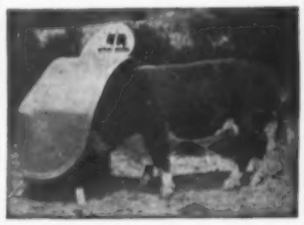

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these findings directly useful to the farmer has been done primarily by the workers in animal husbandry. For the first 35 years of the past half century the applied research in the U.S. was done mostly by experiment station personnel. During the past 15 years much applied as well as basic research has been done by the feed industry and its suppliers. The latter group particularly deserves credit for basic discoveries concerning vitamins and the various antibacterial agents.

The veterinary profession gave us a method for preventing hog cholera in 1908, erysipelas in 1936 and more recently, a vaccine for leptospirosis. Through their leadership tuberculosis was virtually eliminated from animals in the U.S., and they have developed treatments for the control of parasites, to name but a few of their contributions to animal health. Veterinarians also figured prominently in the research on goiter and anemia in baby pigs.

Extension work was organized on a national basis in 1914 (in Minnesota in 1909). The long and persistent efforts of extension personnel to carry the story of research to the producer are now paying off. Improved communication facilities in terms of radio and television have been helpful here. Likewise the work of the farm press, newspapers and magazines have been a potent force in getting the story to the farm, particularly since World War II.

You, Mr. Feed Manufacturer, have done an outstanding job in incorporating the results of research into the feeds you sell. Along with these feeds you have through your services carried the story of better nutrition to the producer. Overall the net effect has been one of closing the gap between research results and their application. Fifty years ago the gap appeared to be anywhere from 10 to 20 years. Today the better producers are crowding the research people for results.

For The Future

We cannot afford to rest on our oars. If we look closely at what has been accomplished, we realize that most of our specific knowledge regarding nutrient requirements pertains mostly to pigs from a few weeks of age to 75 or 100 lb. Our recommendations for older pigs and breeding animals are mostly interpolations from data obtained with young pigs, and estimates based on rations which have given "satisfactory" results. More research is needed with young pigs too in order to define more precisely their nutrient needs and to better understand the innumerable interrelationships between various nutrients and between environmental factors and nutrition. There is work here for all of us.

Swine production has started to move into the hands of specialists, and I think this trend will continue. How soon most pigs can be raised in close confinement depends upon the solution of some disease problems. This problem appears to be the most important single obstacle at the present time to the confinement rearing of large numbers of pigs at one location.

I believe we have turned the corner and are going forward in our attempts to produce meat-type hogs. The percent of such hogs marketed is increasing, the better breeders have recognized their responsibility, and the market agencies in general are moving toward a merit system of buying and selling.

BUYS BULK FEED STATION

COLUMBUS, OHIO — The Ohio Farm Bureau Cooperative Assn. has announced the purchase of the M. E. Miller bulk feed station at Wauseon. The plant is said to be the largest in Ohio specifically designed to handle livestock and poultry feed in bulk. The facility is the first of its kind to be owned and operated by the association.

Northeastern Poultry Association Meets

TRENTON, N.J.—The institutional division of the Northeastern Poultry Cooperative Assn. is now operating in the black, it was announced at the co-op's annual meeting in New York.

The association, a "cooperatives' cooperative" representing more than 20 marketing groups in the Northeast, organized its institutional division early this year. The division services institutions, steamship lines and other large-scale users of poultry products.

Berwyn Gehgan, manager of the division, said that in building this new market, expenses have been necessarily high. He mentioned the addition of several new employees, including John Brehm, in charge of the division, a full time salesman, office help, warehouse employees and a trucker.

Named as the new president of Northeastern was James C. Weisel, Rosemont, N.J., president of the Flemington (N.J.) Auction Market. He replaces George Angevine, Warren, Conn. Other new officers are: E. N. (Ned) Larrabee, Peterborough, N.H., vice president; J. Phillip Croshaw, Mt. Holly, N.J., treasurer; Mr. Gehgan, assistant treasurer; C. H. Stains, Flemington, N.J., secretary, and Dr. Alfred Van Wagenen, managing director of the Northeastern Poultry Producers Council (NEPPCO), assistant secretary.

Two new organizations have joined the Northeastern association—Northern Cooperatives, Wadena, Minn., and State Brand Creameries, Mason City, Iowa. This brings the total list of organizations represented to 25. The extension of membership to cooperatives in North Carolina and some western states was discussed briefly.

Featured speaker at the annual meeting was Wheeler McMillen, publisher of Farm Journal magazine.

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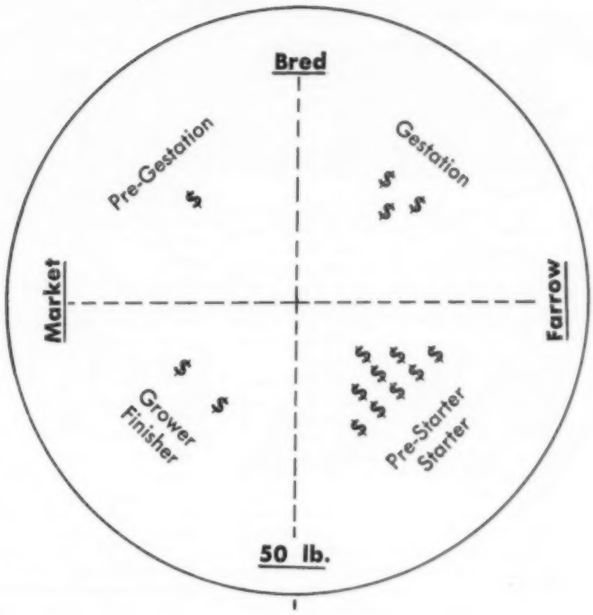

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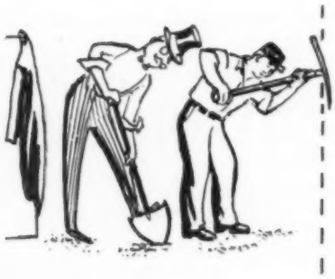

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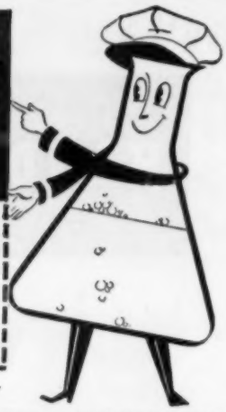

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KENTUCKY COLONEL—Ellis D. English (left), vice president of Archer-Daniels-Midland Co., Minneapolis, displays his Kentucky colonel's commission to Thomas L. Daniels, chairman of the board of ADM. Mr. English received his commission at Hazard, Ky., while attending an observance by Mountain Wholesale Co. of 30 years of uninterrupted business relations between that firm and the Commander-Larabee flour division of ADM. R. W. Gibson, president of Mountain Wholesale, presented the commission, signed by Gov. A. B. Chandler of Kentucky, to Mr. English. Mr. English's associates had an appropriate name plate for his desk and a Confederate flag adorning his office on his return from Kentucky.

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Texas A&M Wins Meat Judging Contest

CHICAGO — A team representing Texas A&M College won the $1,000 first prize offered by Chas. Pfizer & Co., Inc., New York, in the intercollegiate meat judging contest at the International Livestock Exposition in Chicago.

The three-man Texas A&M team, coached by Douglas Wythe, won over 24 competing college and university teams with 2,658 points out of a possible score of 3,000. The contest, now in its 29th year, is sponsored annually by the National Livestock & Meat Board in cooperation with the International Livestock Exposition.

Pfizer also presented a $500 prize to the second place team from Oklahoma State University, coached by Dr. L. E. Walters, and a $250 prize to the third place winner, Iowa State College, coached by Dr. E. A. Kline. The checks were presented by Hugh O. Dermody, assistant general manager of the company's agricultural division. The prize money will be used to finance meat research at the winning schools.

By winning top honors, the Texas team also secured for its school a year's possession of a rotating challenge trophy, presented by the National Livestock & Meat Board.

This was the second year that Pfizer has offered cash prizes in the contest, designed to give youths an opportunity to test their skill in judging cuts and carcasses of beef, pork and lamb for quality, texture, tenderness and palatability. Last year's $1,000 prize went to a team from the University of Wisconsin. The dairy state team placed fourth this year.

Expands Building Plan

OSKALOOSA, IOWA—J. H. Wake Co. has announced that its bulk feed plant here will complete its expansion project by mid-January. An earlier completion date had been set, but the installations have been expanded to provide for doubling the originally planned production if such demand occurs.

The firm said the changes were made because of the growing demand for bulk livestock feed in pellet form.

Plan Elevator at Long Beach, Cal.

LONG BEACH, CAL.—Plans for construction of a $1 million bulk grain elevator of half a million bushels' capacity at the Port of Long Beach, to be the only one of its kind on the West Coast, have been announced by Charles L. Vickers, port general manager, and Irving Koppel, president of the elevator-operating concern.

The project, reportedly unmatched among Pacific ports in its capacity to both load and unload vessels for export or import of bulk grains, will be constructed by the Harbor Department at Berth 17, Pier B, for operation under a 30-year contract by Koppel Bulk Terminals, a local concern organized for the purpose.

Ground-breaking for the terminal is expected to take place next March, with completion set for January, 1960. Between now and then, Mr. Koppel said, plans and designs will be perfected in consultation with grain people and others familiar with the field. The designer and contractor are to be named later.

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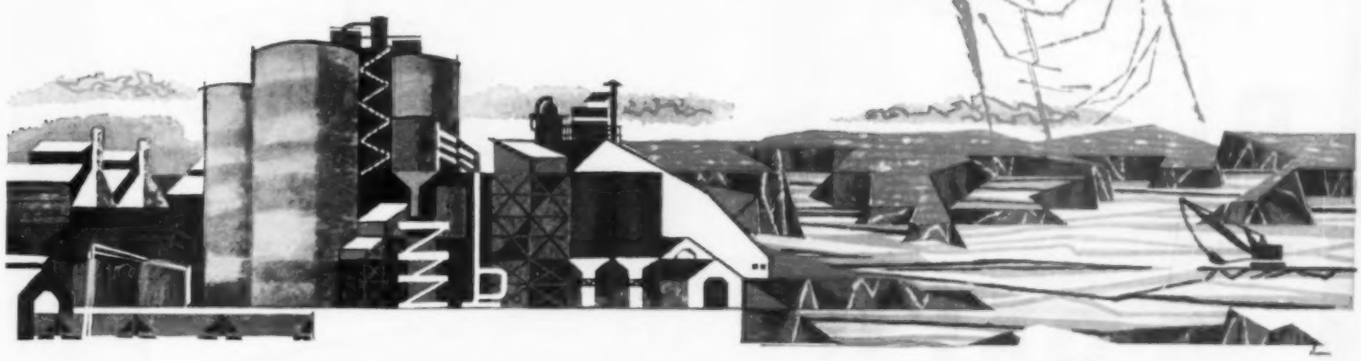

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Economist Outlines Guides for Poultry Industry Expansion in Coming Years

EAST LANSING, MICH. — How much can the poultry industry in the U.S. expand without incurring disastrously low prices?

This question, asked by Dr. H. E. Larzelere, agricultural economist at Michigan State University, is one that confronts the industry during the coming few years.

Dr. Larzelere poses the question and then gives some guides for answering it in an article in Michigan Farm Economics, publication of the department of agricultural economics at MSU.

Following are Dr. Larzelere's comments:

A look at the economic trends of the three major poultry products (eggs, broilers and turkeys) will show that the three have not followed the same pattern. The poultryman will want to consider these trends as one of the many facts to analyze in making his decision about the future.

Eggs: The accompanying graph shows that large swings in annual prices have accompanied small changes in production. In 1948, about 48 billion eggs were sold at an average U.S. farm price of 47¢ doz. In 1956, a record production year, 55 billion eggs sold for an average of only 39¢ doz.

While it is dangerous to say that past trends will continue, the past is the only foundation we can rely on in planning for the future. Also we must remember that population growth, international conditions, relative prices of other foods and improved technology of production may alter the future pattern of these trends.

A lowering of egg prices apparently will not move larger egg supplies through trade channels into consumption. While we might say, "expand your laying flock," we would not want to say this to everyone who has laying hens today. In other words, we would discourage promiscuous expansion in egg production facilities.

The annual average price will be higher if the producers increase production during the seasonally high-priced months. Improving quality of eggs will also generally increase the price they sell their eggs for.

Broilers: In the broiler industry, production has been increasing faster than prices have been declining.

In 1949, 1.5 billion pounds of broilers (live weight) were produced and sold for an average U.S. farm price of 28¢ lb. In 1957, nearly 4.75 billion pounds were produced and sold for an average farm price of 19¢ lb.

On a trend basis, this means that the total U.S. production could have increased by almost 270 million pounds each year without a significant price decrease. This is a smaller yearly expansion than has taken place in the last several years.

We can say, then, that 270 million pounds is a reasonable rate of annual increase for the next year or two. Of course, further technological cost reducing factors may permit lower prices and thereby slightly larger expansion.

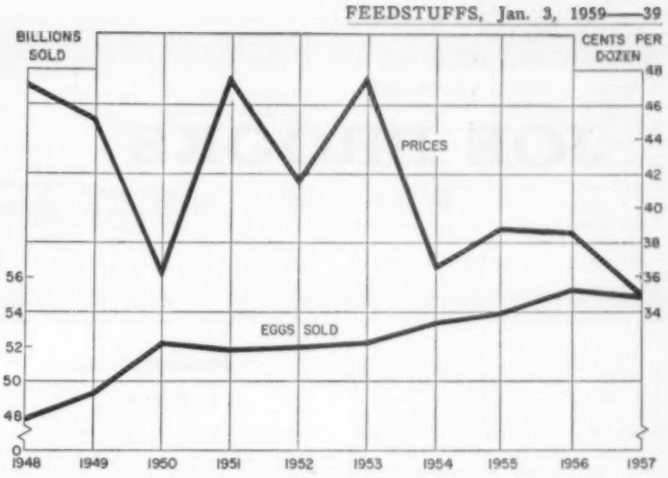
Turkeys: In the turkey industry, production has increased somewhat faster than prices have been declining.

In 1949, about 750 million pounds (live weight) sold at 35¢ lb., U.S. average farm price. In 1957, 1,340 million pounds sold at 23¢ lb.

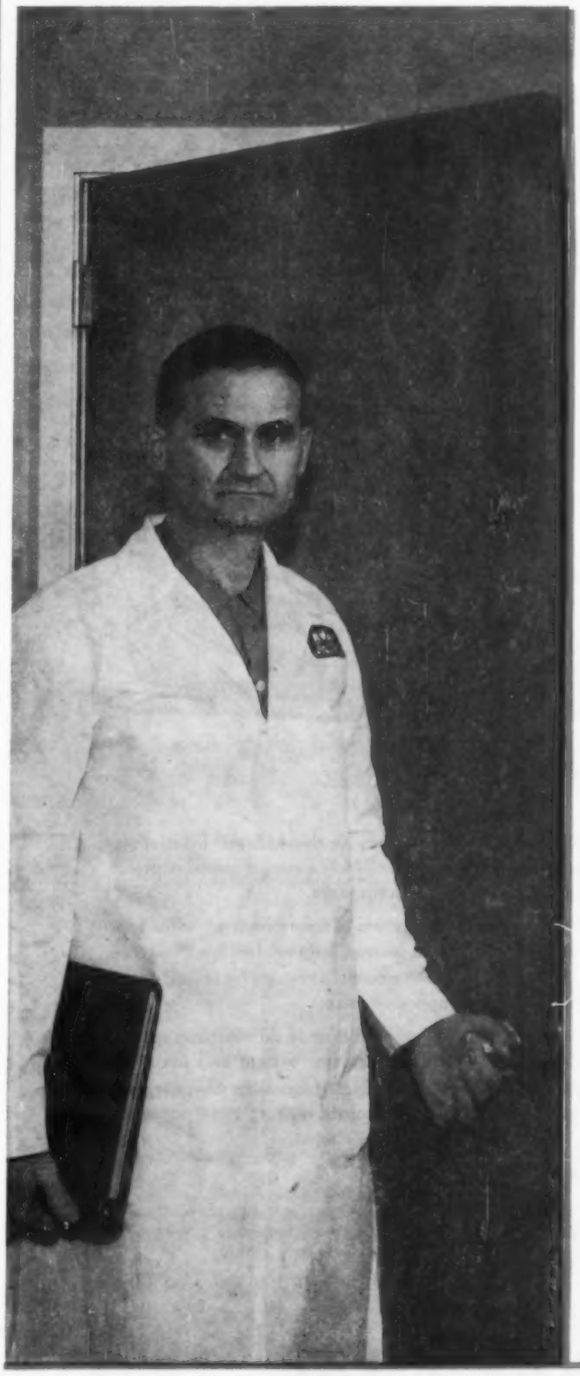
This indicates that an annual increase each year of 26.5 million pounds could have taken place without a significant decline in turkey prices. This suggests a reasonable rate of annual increase.

Summary: Nationally, modest expansions in the broiler and turkey industries can be warranted in the next several years. However, considering present uses of eggs, national expansion of the industry is questionable.

It should be kept in mind that this information refers only to national production. It does not say that Michigan or any other single state should logically follow the national rate of change. However, it does mean that each producer will want to observe the composite national changes as one of several factors influencing future plans.



Eggs sold and prices received by producers, 1948-57



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As an aid to poultry breeding, blood-typing has most often been associated with the effort to learn more about the factors which are low in heritability. It is, however, possible that this new technique will also lead to new discoveries about the highly-heritable factor of the growth rate of progeny. So Dr. Briles and his Staff are working both sides of the street. What they learn may help Arbor Acres' famous team of geneticists to develop new and better methods of selection, to produce an even better broiler female.

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JOE BROOKS

BY AL P. NELSON

The roast chicken meal had been delicious and Joe, ignoring his waistline, had even taken two pieces of delicious cinnamon flavored apple pie which Mary had baked that very afternoon. Now, sitting in the living room reading his newspaper, while Mary busied herself washing dishes, Joe felt very content with himself, his own little family and the world in general.

"I've put in a good day's work. I served a lot of customers. I enjoy my food, and I'm crazy about my family. What more can I want?"

Joe Surprises Mary

Thus, Joe thought. But a little imp, flashing into his consciousness, said, "That's okay, brother. You have taken care of Today, but how about Tomorrow? It will be here in 12 hours."

Joe frowned. That was it. There was always tomorrow, with its problems, with its fight for business and with the battle to make a decent profit in the face of mounting costs. A feed dealer, any business man, must think about Tomorrow, Joe figured. And perhaps that was what kept a fellow on his toes, brought out the best in him. It could be, he thought.

Now Joe got up and walked into the kitchen, a speculative look in his eyes. He grabbed a dish towel and picked up a dish. "Need some help, Hon?" he asked.

Mary's lovely blue eyes opened wide with surprise. "W—why, yes, dear! How nice of you to offer. Usually I have to—" She stopped—diplomacy taking over.

"Usually you have to ask me, is that it?" Joe grinned.

"Well, I know you like to read your paper from cover to cover," Mary said. "But I like to get the dishes done quickly, too, so we can watch television together."

"Sure, life is a matter of constant adjustment," Joe declared. "Look at the farmer. His lot is one of continual adjusting to the ups and downs in the various markets.

"But we're all living, aren't we?" asked his wife. "And that's something."

Joe Surprises Mary

"I wish my customers could look at it that way," Joe stated slowly. Then, "Mary, how would you like to buy a new suit?"

His wife stood perfectly still for a second. Then she grasped the edge of the kitchen counter to steady herself. "What did you say?" she asked, slowly.

"How would you like to buy a new suit?"

Mary looked at him sharply now. "That's what I thought you said. Joe, are you feeling sick?"

"Why, no I'm not sick. I feel fine. Why?"

Mary looked a little mystified. "Usually I have to ask for months when I want some new clothes, or dig up a couple of business ideas for you. I'm—I'm not used to having you come right out and tell me I can have a new suit. It's like a drink of Scotch on an empty stomach."

"I didn't say you could buy a new suit, dear. I said 'do you want a new suit?' "

"Well, of course I want a new suit. What woman wouldn't? What's the difference?"

Joe chuckled. "Well, I'm offering you an opportunity to earn a new suit. Let's put it that way."

Mary's enthusiasm waned a little. "Oh, so that's it. You want me to do something for it."

Joe nodded. "You see, Mary, ever since I bought that camera to take color pictures a few years ago, and a slide projector, I have built a dandy collection of feed and fertilizer scene pictures."

"And those slides have helped you sell a lot of feed and fertilizer," Mary said.

"That's right, but the lure of new things always fades. Farmers are not quite so anxious to see those feed and fertilizer slides as they once were—even though I get new slides about crop yields, ways of storing feed, etc."

"Well, that's only natural. We don't watch television as much as when we first got our set either. But we still watch it. And farmers will still want to look at some feed and fertilizer slides, but perhaps not as much as when you first got the propector."

"I know that," Joe said, "but I want to add punch to my colored

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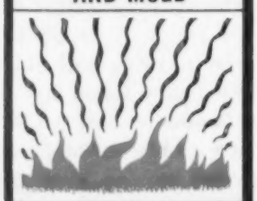

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slide collection, to give it new appeal."

Mary emptied her plastic dishpan and began wiping out the moisture after rinsing. "How?"

"Well," Joe said, wiping the stainless steel coffee maker slowly, "I thought that you might have the time to take the car, load the camera with color film and roam around the trade area on sunny days and take some extra pictures for me."

"Pictures of what? You said you had enough feed and fertilizer pictures for the time being."

"I have. I want you to take good color shots of country churches, country schools and other historical places in the area. We've got two covered bridges in this region. Folks like to look at pictures like that."

"But how will such pictures help you sell feed?" Mary asked.

Joe smiled. "Well, I can get such pictures for about 12¢ each and I can show them at farm meetings along with my feed and fertilizer pictures. Those historical shots will add punch to my slide collection."

"Oh, I see," Mary said. "Those extra slides will put seasoning in—just as I do in my meats."

"I think so," declared Joe. "If you see a bunch of kids at recess at a rural school, get some close-ups. I'll also give you some indoor film and flash bulbs and maybe a rural teacher will let you take a picture of a class at work on a special project, maybe cutting out Thanksgiving turkeys, Christmas decorations or Easter bunnies. Get the idea?"

Mary Likes the Idea

Mary nodded, her eyes bright. "Why, Joe, this is a good idea. I'd love to do it. And farm folks would flock to see a slide showing especially when some of their churches, schools and children are in it."

"That's it," Joe said, "and I might even get invited to show my rural slide collection to some country school, or church or club. Who knows?"

"I'll do it, Joe," Mary said, "and I'll bet you I'll get a lot of good farm recipes, too, and maybe get some shots of farm women making cakes, pies or some other baked delicacies."

"Go ahead," Joe said. "I think this will be excellent customer relations, Mary. And you'll get a suit for it, too."

"Oh," said Mary, "for a minute I forgot about the suit. I have a dandy picked out at the Leader—for months now. Only $67.50."

Joe blinked hard. "Wake me up early tomorrow, dear. I want to start putting in more hours at the feed mill. Expenses are climbing and I've got to put in extra time to meet them."

FIRE DAMAGES ELEVATOR

NEWTON, KANSAS—A fire at the Dannen Mills elevator here recently caused damages estimated at $25,000 to $30,000, Eugene Packwood, manager of the firm's country station division, has announced. The headhouse of the 15,000-bu. elevator was destroyed along with other parts of the structure and an undetermined quantity of grain.

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Steady Feed Grain Prices Expected

MANHATTAN, Kansas — Agricultural economists at Kansas State College look for steady feed grain prices in the next few weeks.

Steady prices for feed grains are expected in January. Continued favorable livestock-feed price relationships encourage heavy feeding. However, the price effects of increased utilization will be just about offset by large supplies for the next 30 to 60 days, the report said.

Over-all feed supplies are the largest on record. There is almost twice as much feed grain per animal unit as will be fed in 1959. Some seasonal price strength may be shown later in the season. However, it is not expected to be an important factor in January.

Corn prices will be dominated by government programs because of the large quantity owned by the government. The supply of corn for the feeding season which began Oct. 1, 1958, was one-third of a billion bushels above the previous record set a year earlier and more than a billion bushels above average. Most of this increased supply will eventually come under government loan or government ownership.

Milo prices will be under heavy pressure of large supplies for the next year or so. This pressure has been partially offset by increased ownership as well as support activity. The supply of sorghum grains for the feeding year beginning on Oct. 1, 1958, was over 900 million bushels.

CLAUD M. CAVE DIES

DODGE CITY, KANSAS — Claud M. Cave, 74, president of the Dodge City Terminal Elevator Co. and prominent Kansas civic and business leader, died in a hospital here recently. He was a former president of the Kansas Grain & Feed Dealers Assn.

In New Position at Tennessee Eastman

KINGSPORT, TENN. — Harry D. McNeeley, vice president of Tennessee Eastman Co. (division of Eastman Kodak Co.), has been named executive vice president of the division.

On assuming his new duties Jan. 1, Mr. McNeeley will also become a vice president of three Eastman subsidiaries which have headquarters in Kingsport: Eastman Chemical Products, Inc., Holston Defense Corp., and Holston Trading Corp. In addition, he will be a vice president of the Texas Eastman Co. division, Longview, Texas, and on the board of directors of the Holston Trading Corp.

Mr. McNeeley, 44, was born in Orlinda, Tenn., and attended the public schools there. He came to Tennessee Eastman in 1935, following his graduation from Carson Newman College with a bachelor of science degree.

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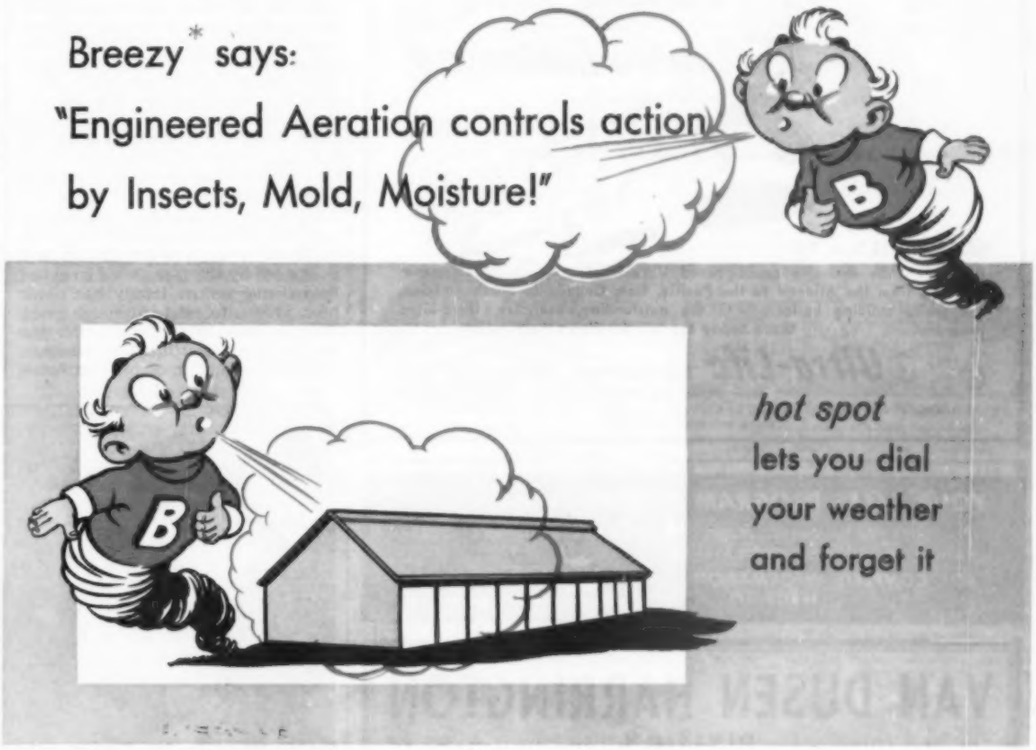

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Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

Some Metabolic Derangements Associated with Magnesium Metabolism in Cattle

● R. R. Marshak, University of Pennsylvania; Journal of the American Veterinary Medical Asso., Vol. 133, No. 11, Dec. 1, 1958, pp. 539-542.

ABSTRACT:

Pretreatment chemical analyses on the blood serums from eight cows in different herds exhibiting typical tetany showed consistent hypocalcemia with a marked variation in the serum magnesium. In this trial the serum calcium levels ranged from 4.5 to 7.2 mg. per 100 c.c.; and the serum magnesium from 0.61 to 3.9 mg. per 100 c.c. All the animals showed marked clinical signs varying from severe tetany to coma. Except for the extreme variability in the serum magnesium, the picture of the blood analysis for cows with tetany was similar to those with parturient paresis. Acid-base balance was not investigated in this trial.

This paper questions that calcium-magnesium ratio alone is responsible for the development of tetany and the severity of the condition.

COMMENT

Much has been reported in the literature regarding the tetany developing on certain pastures and with certain winter feeding conditions in cattle. (Among the more recent: Alten et al, 1958; Blater and McGill, 1956; Flink et al, 1957; Head and Rook, 1957; Kempt and Hart, 1957; Mershon and Custer, 1958; Stewart and Reith, 1956; and Ward, 1956). The most widely held theory holds that the magnesium ion plays more than an incidental role in the development of the condition.

Although it is almost universally true that blood magnesium levels fall to below normal values, the picture is clouded by the fact that a so-called "pure" magnesium tetany has never been proven to exist. Although many theories have been advanced for the condition—i.e., fertilization, weather, chelating agents, insoluble complexes, high ruminal ammonia production caused by lush young grass, and calcium-magnesium ratios—no clear-cut proof exists as yet for the underlying cause of the condition.

There is beginning to accumulate a certain amount of circumstantial evidence to cause many veterinarians to suspect that the primary disturbance is actually one of hypocalcemia. One of the best indications of this is the fact that many so-called "grass tetany" cases exhibit rather prompt and striking recovery upon the administration of unfortified calcium salts. The therapy of tetany and pertinent paresis are identical and if prompt treatment is undertaken, the recovery rate is high—however, in actual practice, the veterinarian is usually not called as promptly on grass tetany cases with the result that treatment is unsatisfactory. Since the condition often occurs on pastures which are isolated and unattended, violent tetany often develops and presents further obstacles to recovery.

●

The Amino Acid Requirement of Laying Hens. 3. Minimal Requirement Levels of Essential Amino Acids: Techniques and Development of Diet.

● D. Johnson, Jr., H. Fisher, Rutgers University; The British Journal of Nutrition, Vol. 12, No. 3, pp. 276-285.

AND

The Amino Acid Requirement of the Laying Hen

● H. Fisher, Rutgers University; Proceedings 1958 Cornell Nutrition Conference, pp. 5-9.

ABSTRACTS AND COMMENTS:

The data presented by Dr. Fisher at the Cornell Nutrition Conference in early November has been published in greater detail in the article in the British Journal of Nutrition. A good

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VETERAN SALSBURY SALESMEN RETIRE—Two veteran representatives of Dr. Salsbury's Laboratories, Charles City, Iowa, were honored on their retirement from the firm at its annual sales meeting held recently at Mason City, Iowa. D. C. Grunz, Owatonna, Minn. (second from left), who has been with the firm since 1944, and A. V. Amet, Kansas City (third from left), who joined the company in 1932, are offered good wishes by Dr. John G. Salsbury (left), vice president and general manager, and Dr. J. E. Salsbury, president. Gifts were presented to the retiring salesmen.

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Richard O. Colvin

BUTLER PROMOTION—Richard O. Colvin has been named western division bulk storage and handling equipment specialist for the Butler Manufacturing Co., Kansas City, according to E. D. Williams, sales manager for the bulk storage division. He will assist customers with their bulk storage plans and the sale of galvanized and coated steel tanks for all dry granular materials. Mr. Williams said that increased interest in conversion to bulk storage and handling of basic commodities has necessitated expanding storage and planning assistance to many new industries. Mr. Colvin will devote his efforts to firms west of the Mississippi only.

general summary of Dr. Fisher's talk was presented in Feedstuffs of Nov. 15, 1958, on pp. 10 and 15. It should be pointed out that the minimal protein requirements (increased by 10% for safety) determined by Johnson and Fisher were based on a diet containing only 0.50% lysine and a total protein level of approximately 9.4% in the form of pure amino acids. However, the practical diets used to confirm the calculated requirements (using 0.5% lysine) contained varying amounts of protein, as low as 10.4% and as high as 16%. The six-month production records of pullets maintained on certain of the practical diets, even though low in protein, were satisfactory when compared with high protein (16%) groups. (Presented at Poultry Science Assn. meetings, August, 1958.)

Although the importance of "protein reserves" in the laying hen has not been adequately investigated, the indications are that if care is taken to select natural diets which meet the minimal amino acid needs of the laying hen and which at the same time are not excessively high in certain amino acids, low protein diets will work in the laying hen. Confirmation of this fact is recent work by certain colleges (Colorado-1957, Wisconsin-1956, Ohio-1958, Vermont-1956, Indiana-1958) and other laboratories (Nova Scotia-1958, Blaylock-1957) reporting little difference with protein levels in layers if care is taken to assure good amino acid balance and quality. A "pattern" of amino acids in laying diets similar to that used by Fisher and Johnson is suggested as a good starting point. If the diet being formulated varies too widely relative to the "pattern," it is very likely not to give desired results. This probably accounts for the poor performance secured by certain investigators using low protein natural diets for the laying hen.

It would be interesting to know if the same general "pattern" of amino acids holds true for all types of layers—i.e. hybrids, inbreds, heavy breeds, etc. There are indications from the field and also from researchers that the picture may not be the same for all birds.

From a practical standpoint no one as yet is willing to stick his neck out and recommend low protein diets for layers. Such factors as egg size, rate of lay, persistency of lay, egg quality, mortality, etc., have not been investigated fully enough to permit such rash advice. It is entirely possible, however, that with the light of future research we will revise laying hen formulations in terms of amino acid requirements which are fairly well defined rather than by the presently loosely defined ones.

Pfizer Head Honored By Italian University

MILAN, ITALY—John E. McKeen, president of Chas. Pfizer & Co., Inc., New York, holds the first honorary doctorate in agricultural sciences ever awarded to an American by the Catholic University of the Sacred Heart in Milan, Italy.

The degree was conferred on Mr. McKeen recently in recognition of his contributions to the "chemical and biological sciences" through studies conducted by Pfizer in the agricultural field. It was accepted on his behalf last week by Pfizer vice president J. J. Thompson, and general manager of the company's agricultural division, who is in Italy on an extended business trip.

The presentation was made at a ceremony marking the beginning of the academic year for the university's 8,000 students.

Mr. McKeen recently returned to the U.S. from a European trip during which he inspected a new Pfizer plant in Latina, Italy.

Pfizer feed supplements and animal health, nutritional and veterinary products are distributed throughout the world. Headquarters for this global agricultural research program are located at Terre Haute, Ind., site of a 700-acre agricultural research and development center, said to be the largest privately-owned facility of its kind in the world.

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Dr. R. E. Greenfield to Retire from A. E. Staley Manufacturing Co.

DECATUR, ILL.—The forthcoming retirement of Dr. R. E. Greenfield, vice president, manufacturing, has been announced by the A. E. Staley Manufacturing Co., Decatur, together with some resulting administrative changes in the company's manufacturing division.

Dr. Greenfield will retire March 1 after 33 years with the company. He will be 65 in February.

William B. Bishop, Sr., was named general superintendent effective Jan. 1. He has been technical superintendent. G. James Dustin was named technical superintendent, and D. Robert Schwandt, methods and materials superintendent, succeeding Mr. Dustin. Mr. Schwandt has been assistant superintendent of the dry starch section.

E. K. Scheiter, company president, in announcing the changes, paid tribute to Dr. Greenfield's "intellectual stature, integrity, and professional proficiency. He has made a major contribution to the success and growth of the Staley Co.," the president said.

Dr. Greenfield joined the company in 1926 as a research chemist. He was named vice president in charge of manufacturing in 1951.

A graduate of the University of Kansas, he received his M.S. and Ph.D. degrees at the University of Illinois. He was a chemist with the Illinois State Water Survey before joining A. E. Staley.

Mr. Bishop has been with the company 32 years. He has been technical superintendent since 1946.

Mr. Dustin has been with the company 20 years. He has been methods and materials superintendent since 1956.

Mr. Schwandt has been with the company 13 years. He has been assistant superintendent of the dry starch section since 1956.

Vernon D. Knight

SALES MANAGER—Vernon D. Knight has been appointed sales manager of Oyster Shell Products Co., Mobile, Ala., it has been announced by William J. Westerman, vice president of the company. Mr. Knight succeeds Amiel W. Brinkley, who is retiring. The newly-appointed sales manager has been serving as assistant sales manager of the firm.

Cyanamid Grant-in-Aid Received by California

SAN FRANCISCO—The University of California School of Veterinary Medicine has accepted a grant-in-aid from American Cyanamid Co., New York, to study the effect of Aureomycin chlortetracycline on several economically important diseases of sheep and cattle under irrigated and native pasture conditions.

The studies, which will be under the supervision of Dr. Blaine McGowan, Jr., will stress efforts to control shipping fever pneumonia of feeder lambs. The effectiveness of the antibiotic as a control of this common disease problem will be tested in pellet and injection forms, and may also be incorporated with ground salt.

The research group also plans to determine whether Aureomycin fed at low levels in winter feed supplements will prevent pneumonia and scours of calves in high mountain areas.

Also included under the grant will be a basic study of the nature and cause of urinary calculi (bladder stones), a very important cause of losses in sheep. New drugs may eventually be available to cure or prevent this condition.

Dr. Sterling Brackett, director of animal industry development for Cyanamid, said that this is the fourth year a grant has been made by the company for research under the direction of Dr. McGowan, a research scientist on diseases of ruminants. Dr. C. E. Cornelius will supervise the research on urinary calculi.

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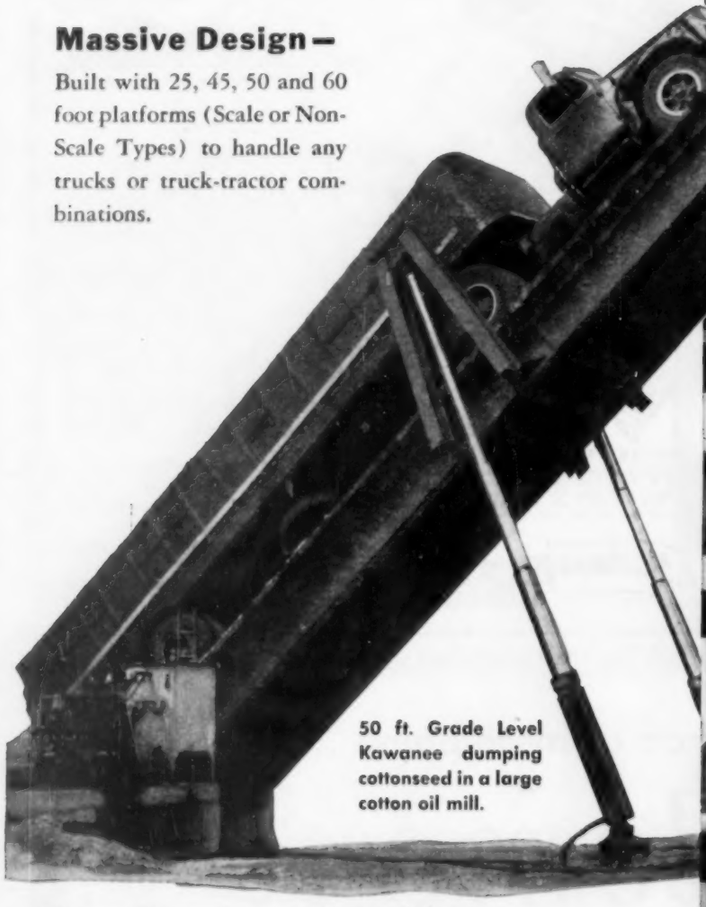

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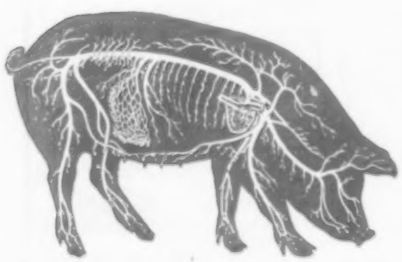

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Amino Acids—Part 5

Amino Acid Requirements of Swine and Cattle

By Dr. H. B. Geurin
Ralston Purina Co.

EDITOR'S NOTE: This is the last in a weekly series of articles on amino acids in animal nutrition. Various aspects of this subject were discussed at the 1958 annual meeting of the Animal Nutrition Research Council in Washington, D.C., and papers presented at the meeting are being published in Feedstuffs. Dr. H. B. Geurin of the Ralston Purina Co., St. Louis, discussed information on the amino acid requirements of swine and cattle. The accompanying article is from his talk at the ANRC meeting.

SWINE: In the short period of 10 years since the first report came out in 1948 by Beeson and co-workers at Purdue to classify the essential amino acids for the pig, a large volume of research results has been recorded which gives us much fundamental information. The essential amino acids have been determined as arginine, phenylalanine, valine, tryptophan, methionine, threonine, histidine, isoleucine, leucine and lysine. In other words, the entire protein needs of the pig can be met by supplying sufficient amounts of these 10 essential amino acids. The other amino acids have been classed as nonessential since if needed by the pig they can be synthesized from the essential amino acids in the ration.

Several research groups using highly purified rations have provided the information necessary to establish the requirements of the pig for all of these essential amino acids (Becker et al 1955A, C, 1957; Beeson et al 1948, 1949, 1953; Bell et al 1950; Brinegar et al 1950A, B; Curtin et al 1957A; Eggert et al 1954, 1955; Germann et al 1958; Hutchinson et al 1957A, B; Jackson et al 1953; Mertz et al 1949, 1952, 1954, 1955; Sewell et al 1953; Sheffy et al 1953; Shelton et al 1950, 1951A, B. C). At the same time many other research groups have added valuable scientific information on the amino acid subject for swine. (These references are included under "Literature Cited").

The essential amino acid requirements for the weanling pig taken from the National Research Council Publication 295, "Nutrient Requirements for Swine," are listed in Table 1.

TABLE 1. Essential Amino Acids for Weanling Pig. (Liveweight 25-75 lb.)

Amino Acid—	Percentage of Total Diet
L-Arginine*	0.2
L-Histidine†	0.2
L-Isoleucine	0.7
L-Leucine	0.6
L-Lysine	1.0
Dl-Methionine‡	0.6
Dl-Phenylalanine	0.46
L-Threonine	0.4
Dl-Tryptophan	0.2
L-Valine	0.4

*This level is adequate but minimum requirement has not been established.
†These requirements have been worked out since the NRC requirements were published.
‡Cystine can replace one half of this methionine level.

One could easily get the idea that research on amino acids is dramatic, simple and very easy but expensive. (Amino acids have been and are still expensive, although prices have been dropping rapidly.) As an example, the work by Beeson et al 1948 shows that pigs receiving no tryptophan lost 2.13 lb. per pig the first week as compared to gains of 1.42 lb. daily for comparable pigs receiving adequate tryptophan. In addition the tryptophan deficient pigs after losing weight for 21 days were fed the adequate tryptophan ration and they then gained 1.47 lb. daily per pig for the remainder of the experiment.

Once deficient test rations were developed, the pattern of response for the other essential amino acids was similar except for arginine. Pigs will grow without arginine but need arginine for normal growth.

In reality, however, many recent experiments have been set up to study the value of supplementing practical type hog rations with amino acids based upon their calculated amino acid deficiency. A large number of these experiments have turned up with negative or at least variable results so that it is difficult to arrive at a satisfactory conclusion on the value of the amino acid supplementation (Catron et al 1953; Cunha et al 1949; Dyer et al 1949; Pfander and Tribble 1955; Meade 1956; Sewell et al 1952; Sewell and Keen 1958). In other cases, however, with rations not so commonly used and apparently more deficient in a certain amino acid, supplementing with the specific amino acid has appeared to definitely improve results (Becker et al. 1955D; Combs et al 1958; Cunha et al 1950; Dyer et al 1952; Hall 1957; Henson et al 1954; Meade and Teter 1957; Miner et al 1955; Peterson et al 1948; Pond et al 1953; Terrill et al 1954).

In many of these recent practical type ration studies, the information obtained indicates the amino acid requirement is different from those that have been determined by the use of special experimental type retions. For instance, today the experimental literature contains references suggesting amino acid requirements for pigs with the ranges as follows: Tryptophan 0.1% L to 0.28% L required (Becker et al 1954A, B, 1955C, D; Beeson et al 1948, 1949; Catron 1953; Meade 1956; Shelton et al 1951B); methionine .22% to .7% required (Becker et al 1954A, 1955A; Bell et al 1950; Catron 1953; Curtin et al 1952A; Meade 1956; Shelton et al 1951A); threonine .4% to 0.92% L required (Beeson et al 1953; Sewell et al 1953; Sheffy et al 1953; Shelton et al 1950); Histidine .2% L to .995%

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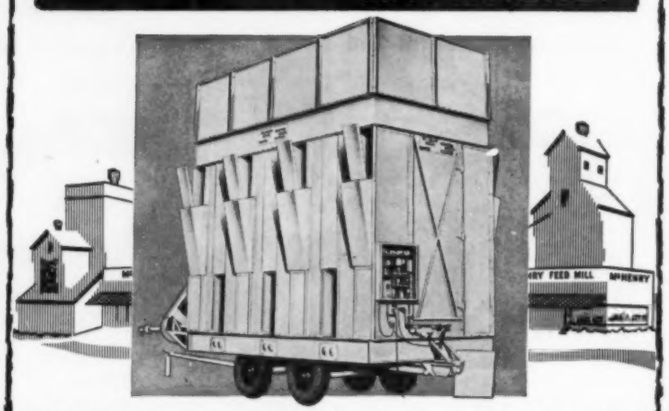
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ROLFES SALES MEETING—The annual fall sales meeting of Rolfes Grain Aeration Companies, Boone, Iowa, was held recently at Boone. A highlight of the meeting was the announcement of a new Rolfes temperature monitoring system. The company announced that it has 16 temperature systems sold and installed in vertical and flat grain storage structures and that more than 3,000 Rolfes engineered and installed systems now exist in the U.S. Pictured above (left to right) are: Back row—Lowell Dahlgren, production manager; Vern Kuhl, Illinois-Indiana; Dick Anderson, Kansas; Bob Hill, Ohio-Michigan; George Rolfes, president; Dick Cook, accountant; Harold Ryan, Texas; Frank Judge, field coordinator; Francis Fitzgerald, production. Middle row—Jim Kennedy, installation superintendent; Bill Pfeiffer, chief engineer; Roger Searls, engineer; Ralph Tibbils, general manager; George Holley, Texas; Ted Silvius, Missouri-Kansas; Ray O'Connor, Nebraska; Ken Ryan, temperature system production manager. Front row—Ken Fairburn, sales manager; Joe Doolittle, Minnesota-Wisconsin; Dave Lasko, Iowa; Jay Wiser, Oklahoma-Kansas; Bob Judge, production. Not pictured are Fred Peacock, North Carolina, and C. E. Alvis, field coordinator.

L required (Eggert et al 1955; Hertz et al 1955); Isoleucine .46% L. to .7% L required (Becker et al 1957; Brinegar et al 1950A); Leucine .6% L to 1.25% L required (Eggert et al 1954; Mertz et al 1955; Sheffy et al 1953); Lysine .52% L to 1.2% L required (Catron 1953; Becker et al 1954A, B; Brinegar et al 1950B; Germann et al 1958; Hutchinson et al 1957A, B; Meade 1956; Hertz et al 1949; Shelton et al 1951C). Actually all of these requirements are right for the specific conditions under which they were tested. However, the wide range of reported amino acid requirements points up the complexity of the amino acid usage problem.

A study of the various procedures and conditions under which the amino acids have been tested reveals many factors which affect the amino acid requirements. Certainly credit is due to the people who have done the work since they have been very careful to report all the conditions under which their tests were conducted. A list of some of the factors involved with amino acid requirements is presented in Table 2.

TABLE 2. With other things being equal the following changes have been observed to increase the measured requirements for one or more of the essential amino acids:

1. An increase in protein level.
2. An increase in energy level.
3. A decrease in pig weight.
4. An increase of another limiting amino acid.
5. An increase in protein digestibility.
6. A decrease in non-essential amino acids.
7. A decrease of certain related nutrients.
8. A decrease in moisture content.
9. An in crease in growth rate.
10. An increase in some other essential nutrient.

Further clarification of Table 2:

1. As long as other nutrients in the ration were not limited, Brinegar et al (1950B) found that the lysine requirement for the pig at a 10.6% protein level was 0.6% whereas when the protein level was increased to 22% the lysine requirement increased to 1.2%.

2. Rosenberg and Culik (1955) demonstrated that in a practical type pig ration with 900 calories per pound the lysine required as measured on rats was .53%, whereas with the energy raised to 1000 calories per pound the lysine requirement increased to 0.71%.

3. Hutchinson et al (1957 A, B) found that the young two week old pig requires 0.935% L lysine whereas the weanling pig needed 0.52% L lysine.

4. If one particular amino acid is limiting in the ration, then the other amino acids cannot be utilized to their fullest extent; therefore, raising of the certain limiting amino acid increases the utilization and need for other amino acids.

5. The digestibility of the protein has essentially the same effect as total protein level in that as more protein is digested there is more protein to be used and the requirements then for amino acids are proportionately higher.

6. Non-essential amino acids, if supplied in adequate amounts, can be used as such and relieve the necessity of various essential amino acids being used to fill the needs for the non-essentials.

7. Related nutrients are those that are closely associated in the nutrition picture. For instance, tryptophan and niacin are closely related in that tryptophan can be changed and meet fully the pig's requirement for niacin. If sufficient niacin is not present in the ration, then the requirement for tryptophan is increased in order to meet the niacin needs.

8. If certain ingredients in the ration are used with a lower moisture content, then the over-all density and energy level of the ration is higher, and thus the specific amino acid requirements will be higher.

9. As the rate of growth increases, so the amino acid requirements increase. A good example is the requirement of arginine as an essential amino acid. Actually the pig can grow approximately 60% of normal without any added arginine. However, to make normal growth, arginine must be added.

10. The level of other essential nutrients in the ration indirectly has an effect in that if some certain nutrient is limiting, then performance of the pig is not optimum, and the amino acid requirements in reality are proportionately low. Raising the level of other limiting nutrients in the ration increases the pig's performance and thus raises the amino acid requirements.

There are other factors the effects of which are not fully known today but which have been questioned as having an effect on response to amino acid supplementation:

1. Utilization of various D forms of many amino acids.
2. Supplying an excess of an amino acid.
3. Level of certain ration additives.
4. Daily feed intake.
5. Effect of combinations of added amino acids.
6. Utilization by pigs of non-protein nitrogen compounds.

It is not at all clear whether some

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R. A. Blomfield D. J. Swanson

SALES AGENT—Blomfield Swanson Co., Minneapolis, manufacturers' representative, has been appointed exclusive sales agent in the Minneapolis trade area for Grace Micro-Prilled urea feed compound. The announcement was made by the Grace Chemical Division of W. R. Grace & Co. The Minneapolis firm, headed by R. A. Blomfield and D. J. Swanson, will represent Grace in Minnesota, North and South Dakota and a portion of Wisconsin.

of the D form of amino acids are depressing, not utilized, partially utilized or fully utilized. The D form of tryptophan is probably most questionable, with some reports indicating a part of the D form is used (Becker et al 1955C; Shelton et al 1951B; Thompson et al 1952); whereas, other reports indicate a slight or definite depression (Becker et al 1955B; Meade and Teter 1957). The D form of lysine may be depressing (Pond et al 1953). Along the line of various forms, one compound, the calcium salt of dl alpha hydroxy gamma methyl mercaptobuteric acid (MHA), is commercially available and has been shown to be equal to dl methionine on an equal weight basis to supplement a methionine deficient swine ration (Becker et al 1955).

There is some indication that a slight excess of even an L form of an amino acid may depress results (Abernathy et al 1958; Shelton et al 1951C).

It is possible that differences in ration palatability as affecting daily feed intake may have an effect on amino acid requirements (Cunha et al 1950).

Certain ration additives such as antibiotics apparently have an indirect effect on slightly decreasing amino acid requirements (Burnside et al 1954; Cunha et al 1949; Sewell et al 1952).

A possibility exists that some certain combinations of amino acids used to supplement a predominant natural protein ration may be poorly utilized (Hall 1957; Levey et al 1950; Meade 1956; Pfander and Tribble 1955).

The picture is not clear as to the value of certain non-protein nitrogen ingredients when used for the non-essential amino acids. (Armstrong and Mitchell 1955; Eggert et al 1955; Hays et al 1957; liu et al 1955; Mertz et al 1955; Shelton et al 1950).

Discussion: In short, there is no easy approach for stating amino acid requirements of swine in absolute values. Instead, the requirements change as the ration changes. The better balanced and the more concentrated the ration becomes, the greater are the amino acid requirements. This means the ration must be continually rebalanced with respect to amino acid levels as improvements are made in the ration.

Not enough is known today concerning the reported differences in amino acid requirements for swine or the relationships of the influencing factors on each amino acid requirement. It would be of tremendous value to extend our swine amino acid knowledge to a point where rations could be calculated for amino acid balance with a reasonable assurance of determining each successive limiting amino acid. The economic justification is that when any amino acid is the limiting factor in the ration, then all other nutrients above that level are very poorly utilized. Under these conditions a little can do so much.

From a feed control standpoint it will be worthwhile to follow the amino acid work since swine rations in the future could contain much less protein than today and yet be well balanced and do an improved job.

Future work in the amino acid field should include work of both a fundamental and practical nature. It should be realized that the work will necessitate much "thinking power." Amino acid research requires more manpower, for instance, than was needed in the era of "unidentified factors." Research should progress on all of the amino acids even though one might believe that the prices on some today limit their use. Remember the gaining of more fundamental knowledge on all amino acids will then enable the nutritionist at any one time to consider various combinations of natural ingredients as well as the use of special amino acids in ration formulation. Areas of research that would add to our amino acid

(Turn to page 52)

Charles C. Hammer

TO NEW POST—The board of directors of Bemis Bro. Bag Co. has announced the election of Charles C. Hammer, formerly of Cleveland, as assistant treasurer. Mr. Hammer comes to Bemis from Standard Products Co., Cleveland, where he was company treasurer. He is a graduate of Drexel Institute of Technology and attended the advanced management program at Harvard Business School.

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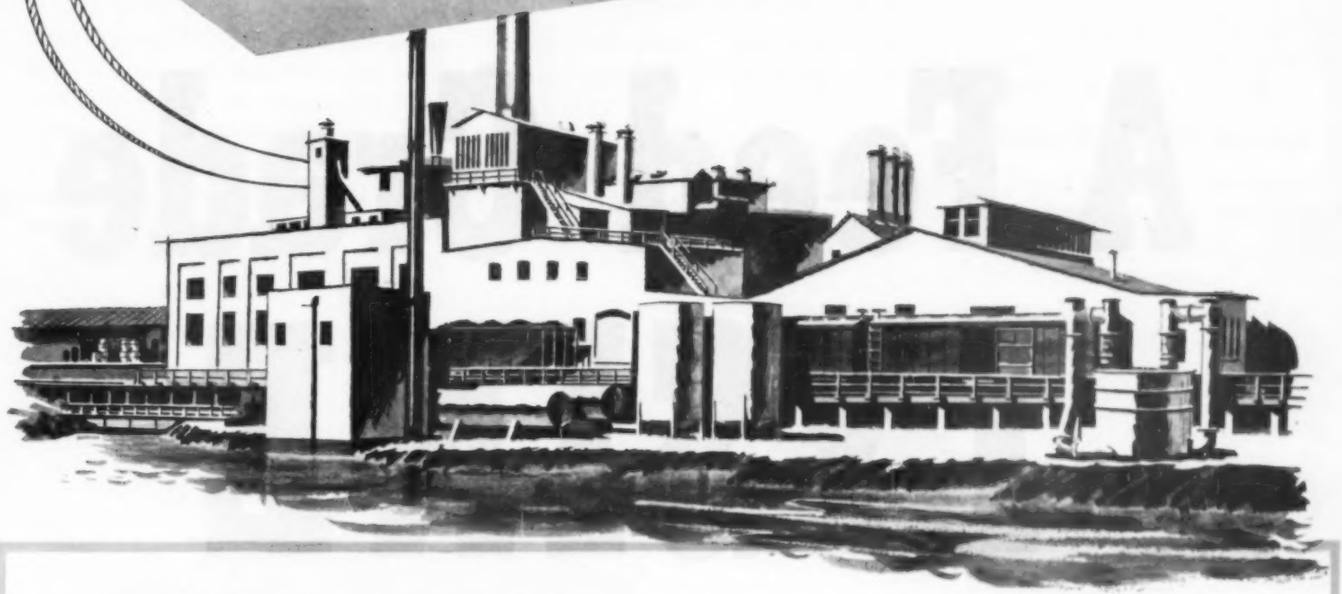

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"Role of lysine in the growth and feather pigmentation of turkey poultry."—Journal of Nutrition, 63:471, Nov., 1957

"Lysine and protein requirements of bronze turkeys."—Poultry Science, 36:884, July, 1957

Or call Pfizer's Agricultural Research and Development Department, Terre Haute, Indiana, for specific details or complete bibliography.

And experiments have been conducted in lysine requirements of other species of farm livestock and poultry. See:

"Effect of dietary energy concentration and age on the lysine requirements of growing chicks."—Journal of Nutrition, 65:25, May, 1958

"Lysine requirements of the pig from 2 to 6 weeks of age."—Journal of Animal Science, 16:553, Aug., 1957

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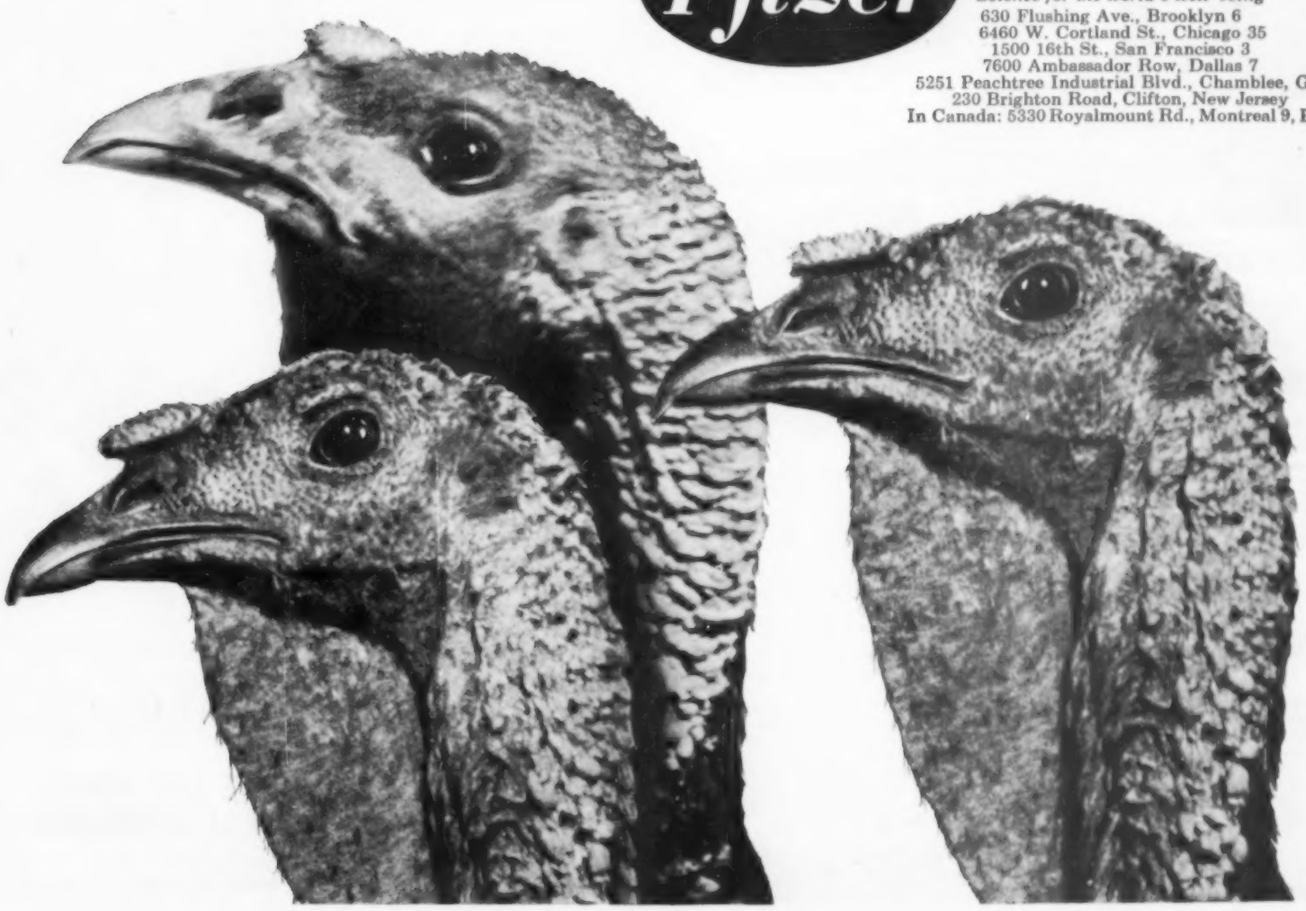

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knowledge and help clarify certain existing published results would include:

1. The critical effect of each D form of the amino acid where the D1 form is generally used for supplementation.
2. Relationship of each essential amino acid as affected by ration changes in:
   a. Protein.
   b. Energy.
   c. Related ration nutrients.
   d. Other classes of ration nutrients.
3. The effect of growth rate or stage of growth on each amino acid requirement.
4. Level of non-essential amino acids related to each essential amino acid requirement.
5. Digestibility of protein with reference to the amount each amino acid released.
6. Characterizing successive limiting amino acids in practical rations.

One cannot over-stress the need to report all of the conditions under which the tests have been conducted. In reviewing the work that has been reported to date, it has seemed important to characterize the active level of supplementation when various compounds are used. It is not clear in some reports whether the compounds have been added as such or whether the levels added were adjusted to the amino acid activity supplied.

CATTLE: Research results have indicated the amino acid requirements of cattle are considerably less critical and demanding as compared to swine or as compared to other nutrient needs of cattle. In fact, other areas of beef cattle research work have looked so promising in recent years that any thoughts of amino acid studies have largely been pigeonholed. Practical cattle rations, of course, do vary in amino acid content as well as in results; however, the correlation, if there is one, has eluded detection.

In 1948 purified diets for studying amino acid requirements of ruminants were developed and results demonstrated that amino acids are synthesized in the rumen (Thomas et al 1948).

It has been interesting to note that in both experimental feeding tests and in vitro studies with microorganisms, methionine has shown up as the most promising amino acid (Albert et al 1956, Jordan 1957, Noble et al 1955, Trenkle et al 1957). Proline and alanine have shown promise of increasing cellulose digestion by rumen microorganisms in the laboratory.

Since successful use of non-protein nitrogen such as urea is still limited to a minor portion of the protein needs of cattle, it would be desirable to study more thoroughly the ration balance and amino acid requirements of cattle when non-protein nitrogen is used to supply a major portion of the protein needs of cattle. Along this line it has been shown with lambs that methionine improves growth results. Without methionine wool growth did not occur.

SUMMARY: The essential amino acids for the weanling pig and their required level under conditions of purified ration test procedures are (adapted from NRC recommendations):

Amino Acid—	Percentage of Total Diet
L-Arginine	0.2
L-Histidine	0.2
L-Isoleucine	0.7
L-Leucine	0.6
L-Lysine	1.0
Dl-Methionine*	0.6
Dl-Phenylalanine†	0.46
L-Threonine	0.4
Dl-Tryptophan	0.2
L-Valine	0.4

*One half of this level can be replaced by cystine.
†A portion of this level, perhaps half, can be replaced by tyrosine.

Many references in the literature suggest widely varying amino acid requirements for pigs, and basically all of these research reports are right. A careful study indicates various ration changes do have a marked effect on the swine amino acid requirements. With other things being equal the following changes have been observed to increase the measured requirement for one or more of the essential amino acids: An increase in protein level, an increase in energy level, a decrease in pig weight, an increase of another limiting amino acid, an increase in protein digestibility, a decrease in non-essential amino acids, a decrease of certain related nutrients, a decrease in moisture content, an increase in growth rate and an increase in some other essential nutrient.

To help clarify the existing swine amino acid requirement picture, more work is needed on various effective amino acid forms; the relation of each essential amino acid on ration changes in protein, energy, related nutrients and other nutrients; requirements at various stages and rates of growth; the effect of ample non-essential amino acids; the digestibility of each amino acid in feedstuffs; and characterizing successive amino acids in practical rations.

Research on amino acids to be most fruitful requires much time and thinking power.

v v

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(Turn to page 57)

GIVE HIM ADVICE HE'LL APPRECIATE

Remind him to order Morton T-M Salt. See page 59.

nf-180 protective feeding...the best way yet to reduce risk in today's turkey feeding

If you're like many feed manufacturers today, you can get all the turkey feed business you are willing to finance. The big problem is one of controlling risks. Even when you choose good growers, supply them with good feed, and see to it they start with good poults, there's still one critical gap . . . control of disease and flock management.

Disease must be controlled to give feed and birds a fair chance to produce meat at a profit. Control disease and most growers can make out, even in tough years.

How then to get the widest, most effective protection against disease? There is *one best way* . . . by including in your feeds the one medication that prevents and controls more turkey diseases than any other drug. That's nf-180.

You need take only two steps to make "nf-180 protective feeding" available to your feeders and growers:

1. Medicate all prestarter and starter feed with 2 lbs. nf-180 Concentrate (100 grams furazolidone) per ton of complete feed, and
2. Make a Booster feed containing 4 lbs. nf-180 Concentrate (200 grams furazolidone) . . . for flexible nf-180 dealer custom-mixing to meet different field situations in a hurry.

With nf-180 protective feeding on the job day in and day out, you'll reduce your financing risk . . . and also the expense of many service calls. This can all add up to a sounder year in the turkey feed business.

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Start poults on 2 pounds of nf-180 per ton of total feed

Poults off to a fast, healthy start have a much better chance to finish out at top grade . . . return more profit over cost. Every one that dies is an outright profit loss . . . every poult you protect from early-life disease is a potential money-maker for you. That's why disease-fighting benefits of nf-180 pay off big. Fortified with nf-180, turkey starter feeds protect poults from a wide range of diseases.

In fact, no other drug (antibiotic, sulfa, arsenical . . . anything) prevents and controls as many diseases as nf-180.

Disease hazards face a poult from the day it is hatched. Egg-transmitted diseases may even endanger the young poult's life before it gets a start . . . may cause heavy early week mortality.

nf-180 fed at 2 pounds per ton of total feed, markedly reduces losses due to egg-transmissible diseases. In addition, it helps poults fight both identified and unidentified or sub-clinical diseases to which they are continually exposed. Free of the constant disease fight, your poults make better use of feed. For example, tests at a Midwestern university showed nf-180 gave 8% better feed conversion. Proof that poults grow faster, reach selling weight with a market-topping "nf-180 finish."

The cost of this wide-range disease protection is about 4½¢ per poult...for disease and stress protection from day-old to 8 weeks. Only a few cents more protects a bird all the way to market.

Continuous nf-180 protective feeding for growing and finishing

Even with best management, dangerous stress periods and unexpected disease outbreaks can occur any time . . . break through flock resistance and cause heavy mortality.

That's where continued protective feeding with nf-180 fits into turkey growing profit plans. Continuous protective feeding of this lifesaving nitrofuran is an "internal management" program . . . provides birds with the extra resistance they need to fight off disease and keep gaining through stress periods.

Four years of testing at a Midwestern university showed that in addition to superior disease protection, continuous nf-180 protective feeding improved feed conversion . . . stepped up growth rate, and reduced total mortality by 11 percent. Birds also showed a better finish. Researchers found that nf-180 protected birds required 8 lbs. less feed to reach market weight, saving about 3 cents feeding cost per pound of gain.

And nf-180 does its disease-fighting job in a unique way — by starving germs — letting no resistant strains build up. nf-180 is used up as it works . . . there is no waste or harmful side effects. It's safe to use throughout the entire life of your flock . . . and with birds of all ages, including breeders.

controls more turkey any other drug...

Comparison of nf-180 (furazolidone) with other drugs used in turkey feed medication

DRUG	Growth Stimulation	Typhoid & Pullorum	Paracolon	Para-typhoid	C.R.D. Sinusitis	Blue Comb	Hexa-mitiasis	Synovitis	Ulcerative Enteritis (Quail Disease)	Black-head	Stress Periods
*nf-180 (furazolidone) Level (grams)	YES 7½-10	YES P-50 T-100	YES P-100 T-200	YES P-50 T-100-200	YES P-50 T-100-200	YES P-50 T-100-200	YES P-100 T-200	YES P-50 T-100-200	YES P-50 T-100-200	YES P-100 T-200	YES P-50 T-100
Chlortetracycline Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	YES P-50 T-100	YES P-100 T-200	NO	NO	YES P-50 T-100
Oxytetracycline Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	YES P-50 T-100	YES P-100 T-200	NO	NO	YES 50
Bacitracin Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	NO	NO	NO	NO	YES P-50 T-100
Penicillin and Streptomycin Level (grams)	YES 2-5 (for penicillin)	NO	NO	NO	YES 75 Strep 25 Pen	YES 75 Strep 25 Pen	YES 75 Strep 25 Pen	NO	NO	NO	NO
Penicillin Level (grams)	YES 2-5	NO	NO	NO	YES T-100	YES T-100	NO	NO	NO	NO	NO
Penicillin and Bacitracin — 37½B plus 12½P Level (grams)	YES 5 Bac 1 Pen	NO	NO	NO	YES P-50	YES P-50	NO	NO	NO	NO	NO
Erythromycin Stearate	NO	NO	NO	NO	P-? T-YES	P-? T-YES	NO	P-? T-YES	NO	NO	NO
2 - Acetylamino 5 - Nitrothiazole	NO	NO	NO	NO	NO	NO	NO	NO	NO	P-YES T-YES	NO
4 - Nitrophenyl Arsonic Acid	NO	NO	NO	NO	NO	NO	NO	NO	NO	P-YES T-NO	NO
A Sulfa—Tin—Arsenical Combination	YES	P - ? T - NO	NO	NO	NO	P-YES T-NO	P-YES T-NO	NO	NO	NO	NO

KEY: P: Prevention level in grams per ton of complete feed
T: Treatment level in grams per ton of complete feed

*Each pound of nf-180 contains 50 grams of furazolidone

Why take chances with drugs that fight only one or two diseases? Seldom do diseases strike singly. Associated diseases and opportunist organisms are usually waiting to attack weakened birds. nf-180 is the *one* drug . . . the only one . . . offering wide-range effectiveness. It prevents and controls: blackhead, typhoid, paratyphoid, pullorum, paracolon, hexamitiasis, CRD (air sac), blue comb (nonspecific enteritis), ulcerative enteritis (quail disease), and synovitis.

Besides these recognized diseases, there are a host of hard-to-diagnose, hidden infections that sap vitality and retard growth . . . rob your birds of energy even when they may seem to be doing all right. nf-180 protects birds against stress. Growers find that continuous feeding of nf-180 keeps most sub-clinical infections well below the danger level. nf-180 is completely safe, nontoxic. It is palatable, stimulates feed intake, improves growth and feed conversion.

Turkey growers report on nf-180:

"Had 96.7% livability on 15,000"

Last year this grower started 15,000 T. Whites on 2 lb. nf-180 in the feed. Liked growth and livability up to ranging time, decided to continue with 2 lb. level in feed right on to finish. Said: "Results were wonderful . . . no real disease outbreaks at all . . . sold 14,540 birds . . . 96.7% livability . . . the best we ever had." This year started 15,000 more on 2 lb. nf-180 in feed. Got up to 12 weeks without a disease problem. Then grower changed to a new drug given him *free* to try in his feed to prevent blackhead. He had some blackhead outbreaks, and reported: "It didn't do the job nf-180 did. Even free, this new drug cost us money to use. We'll go back to nf-180."

"nf-180 gave us trouble-free season"

Turkey broiler grower had 8,000 on 2 lb. level of nf-180 from start to finish. Got to market without any disease troubles. Then put in another 8,000 for regular market. Kept these on 2 lb. level for 14 weeks and dropped to 1 lb. nf-180 per ton on to finishing. This flock just as trouble-free as first one.

"We wouldn't be without it"

Grower keeps poults on feed with 2 lb. nf-180 all through brooding period and first week on range. This stopped most all early mortality. During growing period he uses 2 lb. nf-180 stress feed whenever birds look like they need it. Says: "We like this protection . . . wouldn't be without nf-180."

"Practically stopped paracolon losses"

Paracolon losses among poults had this grower in real trouble. His state lab recommended starting birds on 2 lb. level of nf-180. Said: "nf-180 practically eliminated death losses from this disease. Poults made better gains and we got by on less feed."

"nf-180 pulled us through tight year"

Grower reported: "We couldn't have stood our usual mortality losses this year the way prices were. Using nf-180 kept disease down so we came through with very little trouble. Better feed conversion saved us money and our birds finished out well. Got a top price. Don't believe we could afford to raise turkeys without nf-180. especially in a tight year."

"Finished best flock in years"

This grower's last flock had made poor gains, suffered frequent off-feed periods and disease setbacks. His feed serviceman suggested nf-180 in the feed this year to prevent these troubles. Birds were started on 2 lb. level nf-180 feed and kept on it all through brooding period. Grower liked the size, vigor and livability of his flock so well he decided to continue 2 lb. level on to marketing. "Our death losses were the lowest and finish the best we'd had in years," he said.

Look how easy it is to set up an nf-180 protective feeding program! Here's how to do it

Consider the disease protection offered by an nf-180 medication program, and you'll want to join the many successful nf-180 users. Here are feed medication plans that fit your needs:

1. STARTING PERIOD . . . use 2-lb. level nf-180 in all feed from start, through brooding period and first week on range.

2. GROWING-FINISHING PERIOD . . . check your past history and local area disease problems. Choose the protective feeding plan you need:

- 2 lb. level nf-180 continuously should be used to protect against blackhead, hexamitiasis and other diseases.
- 1 lb. level nf-180 continuously* gives wide protection against stress and most diseases where blackhead and hexamitiasis are not likely problems.
- week-a-month plan* for areas where disease is not a serious problem. Many growers report good luck using a 2 lb. level nf-180 stress feed one week a month to clean up birds, fight stresses, and knock out disease organisms before they can build up and trigger trouble.

Try nf-180 protective feeding . . . from start to finish. You'll experience the most disease-free season . . . market the best birds you ever had . . . with an "nf-180 finish," and gain extra profits.

Drug levels

nf-180 levels always refer to pounds of nf-180 per ton of complete ration. If nf-180 is added to supplements and concentrates, then proportionately higher levels must be used to compensate for drug dilution by grain. A 2 lb. level of nf-180 per ton appears on tags as 0.011% furazolidone.

For local mixing, *nf-180 Custom Mix Ten* is available (10 grams furazolidone per lb.). This is one-fifth the drug concentration of regular nf-180. To achieve the same drug level, 5 times the amount is needed per ton.

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furazolidone

* If disease outbreaks should occur on these low-level nf-180 plans, higher levels (2 and 4-lbs nf-180 per ton) can be used as specific treatments. Ask your feed man for proper levels and lengths of feeding periods. nf-180 tablets are mighty helpful to treat the first few sick birds noticed to check trouble while nf-180 medicated feed is being put in for flock treatment.

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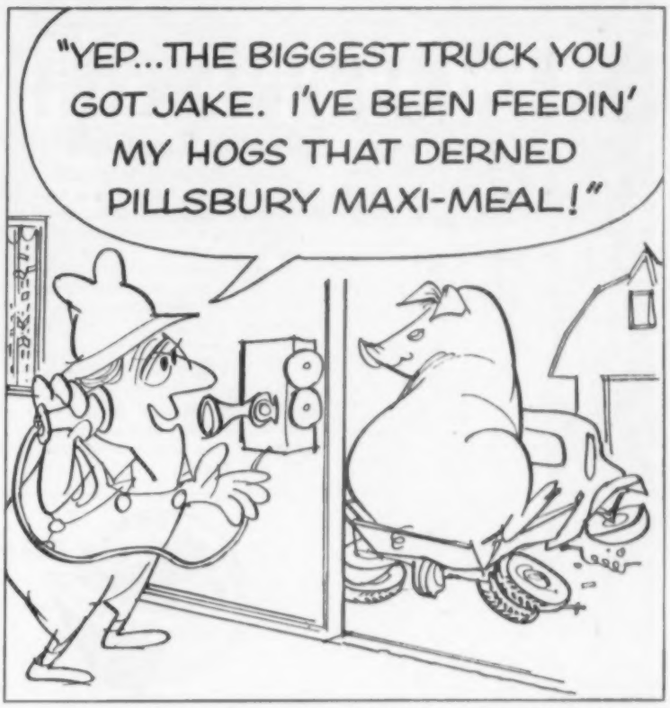

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Quality Egg Club

CLAY CENTER, KANSAS. — Clay County egg producers have organized a Quality Egg Club. Pending election of officers, a steering committee will handle its affairs. The new organization will provide a forum for the discussion of poultry problems and will be in a position to take group action on poultry activities.

FEED MAN DIES

WARREN, OHIO—Frank Klingensmith, 86, founder of the Klingensmith Feed Mill at Leavittsburg, died recently. He operated the mill with his son Melvin.

600,000 Reporters Help USDA Make Agricultural Forecasts

WASHINGTON — Approximately 600,000 crop and livestock reporters in the U.S. had a hand in making agricultural estimates and forecasts during 1958, the U.S. Department of Agriculture reported.

The reporters, including farmers, ranchers and tradesmen who served voluntarily without pay, filled out and returned about 2.7 million questionnaires mailed to them by USDA during the year.

The returned questionnaires formed the basis for official crop and livestock estimates and forecasts. Additional data was gathered by USDA statisticians and cooperating state agencies.

From the information about 500 reports were issued by the Crop Reporting Board during the year. These covered about 150 different farm products and included reports on refrigerated warehouse food stocks, prices paid and prices received by farmers, and farm employment and wage rates.

During the year, several steps were taken to improve crop and livestock reporting. Included were:

The quarterly cattle-on-feed reports have been expanded to include eight more states, bringing the total to 21. The new states are Pennsylvania, Michigan, Wisconsin, North Dakota, Oklahoma, Montana, Idaho, and Utah. The quarterly report to be issued in January will use information gathered under the expanded program.

Special tabulations were made in a number of states to obtain a more precise count of hog farms to be used in connection with pig crop reports. Steps were taken to speed up the date of revision of pig crop estimates where necessary, by issuing these revisions in connection with quarterly reports.

A program to improve egg production estimates was started in seven states — Connecticut, Massachusetts, Indiana, Minnesota, Iowa, Georgia, and Texas. This expanded program is aimed at getting more complete data on commercial flocks and developing more precise estimating techniques. Work was continued during the year on developing new and improved sampling techniques for crop and livestock reporting.

Clarence Rowland, Jr.

CHAIRMAN NOMINEE — Clarence Rowland, Jr., partner in Engel & Co., has been nominated as chairman of the Board of Directors of the Chicago Board of Trade. Mr. Rowland is presently completing his third term as a director of the board. The election will be held Jan. 19.

FEED FIRM EXPANDS

PLYMOUTH, WIS.—Joosse Farm Supply, Inc., which incorporated recently after the addition of the Adell (Wis.) Feed Mill operated previously as the Galloway Feed Co., announced that remodeling work on the Adell mill will be completed soon. The firm operates mills in Waubeka, Knellsville, Adell and Waldo, all in Wisconsin.

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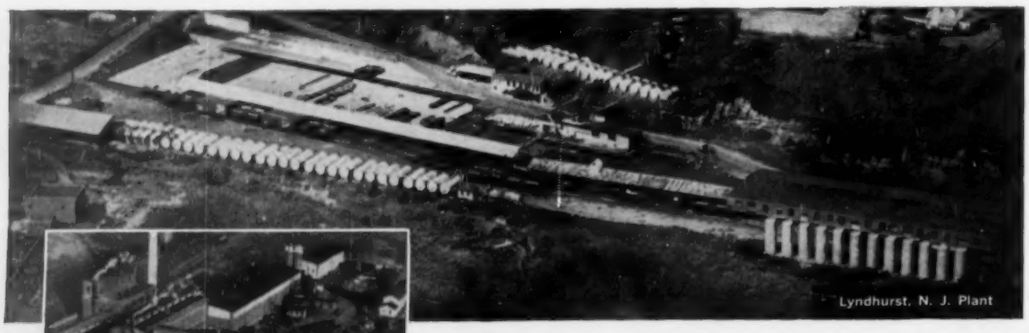

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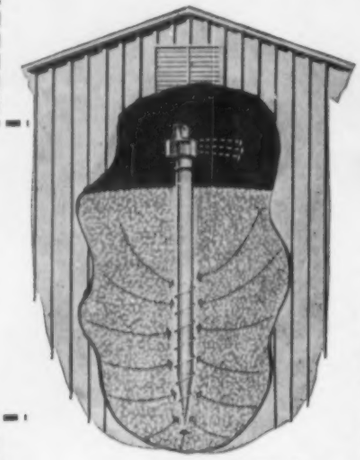

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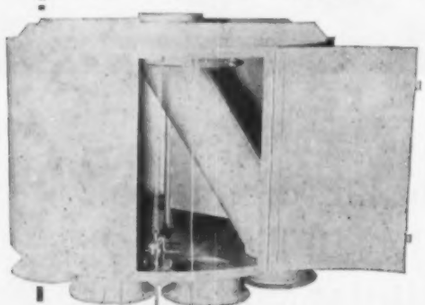

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Convention Calendar

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear ahead of the ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

• • •

March 4—Mutual Millers & Feed Dealers Assn.; Statler-Hilton Hotel, Buffalo; sec., Mrs. G. A. Bentley, 41 Chautauqua Ave., Jamestown, N.Y.

Sept. 17-18—Arkansas Formula Feed Conference; University of Arkansas, Fayetteville; chm. Dr. E. L. Stephenson, Department of Animal Industry.

• • •

Jan. 5-6 — Kansas Formula Feed Conference; Kansas State College, Manhattan, Kansas; chm., Dr. Tom Avery, Poultry Department.

Jan. 6-7—Elevator Business Managers Clinic, Michigan State University, Kellogg Center, East Lansing, Mich.; chm., Earl H. Brown.

Jan. 6-8—National Turkey Federation Convention and Exposition; Veterans Auditorium, Des Moines, Iowa; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 9-10 — Kansas Seed Dealers Assn.; Hotel Broadview, Wichita; sec., O. E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

Jan. 11-13—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Fleming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 18-20—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

Jan. 20—Nevada Feed Conference; University of Nevada, Reno, Nev.

Jan. 20-21—North Dakota Poultry Industries Convention; Elks Club, Fargo, N.D.; chm., B. J. Duke, North Dakota Poultry Improvement Board, Bismarck, N.D.

Jan. 22-24—New Mexico Grain & Feed Dealers Assn.; Hilton Hotel, Albuquerque; sec., Parley Jensen, Box 616, Albuquerque, N.M.

Jan. 26-28 — Southeastern Poultry & Egg Assn., Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Jan. 27-28—Agricultural Industries Forum; University of Illinois, Urbana; Harold G. Halcrow, Agricultural Economics Department.

Jan. 28-30—American Dehydrators Assn., Shamrock-Hilton Hotel, Houston; exec. vice pres., Joseph Chrisman, Board of Trade Bldg., Kansas City 5, Mo.

Jan. 29—New Jersey Feed Industry Assn.; Hotel Stacy Trent, Trenton; pres., I. Lintner, P. O. Box 88, Somerville, N.J.

Jan. 29-30—Oregon Animal Industry Conference; Oregon State College, Corvallis; sponsored by Oregon State College and Oregon Feed & Seed Dealers Assn.; sec., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Jan. 31 — Connecticut Regional Swine Producers Day; University of Connecticut, Storrs; Donald M. Kinsman, Animal Husbandry Dept.

Jan. 31—Regional Swine Producers Day; Ratcliffe Hicks Bldg., University of Connecticut, Storrs, Conn.

Feb. 6-7—Minnesota Turkey Growers Assn.; Leamington Hotel, Minneapolis; sec., A. E. Eisenmenger, 2200 University Ave., St. Paul, Minn.

Feb. 4 — Illinois Feed Nutrition Conference; Illini Union Ballroom, University of Illinois, Urbana; chm., Dr. Harold H. Draper, Animal Science Dept.

Feb. 9-10—Montana Nutrition Conference; Montana State College, Bozeman, Mont.; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 11-12 — Feed Mill Production School; Leopold Hotel, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., J. G. Wilson, 814 Second Avenue Bldg., Seattle, Wash.

Feb. 12-13—Utah Feed Manufacturers & Dealers Assn. Nutrition Conference; Brigham Young University, Provo; sec., Dr. Lawrence Morris, Brigham Young University, Provo, Utah.

Feb. 12-13 — Washington State Feed Assn.; Leopold Hotel, Bellingham; mgr., J. G. Wilson, 814 Second Avenue Bldg., Seattle, Wash.

Feb. 13-15—Institute of American Poultry Industries' Fact Finding Conference; Municipal Auditorium, Kansas City, Mo.; Institute of American Poultry Industries, 59 E. Madison, Chicago 2, Ill.

Feb. 16-18—Farmers Elevator Association of Minnesota; Hotel Nicollet, Minneapolis, Minn.; sec., Lloyd A. Nelson, Lumber Exchange Bldg., Minneapolis.

Feb. 16-18—Midwest Feed Manufacturers Assn., annual convention, Muehlebach Hotel, Kansas City, executive vice president, Lloyd Lar-

CALENDAR FOR 1959

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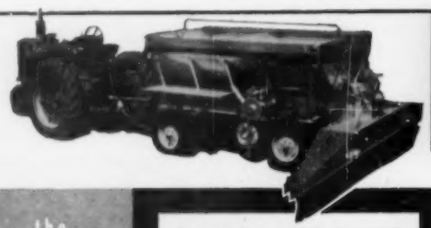

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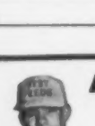

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Feb. 22-24—Colorado Grain, Mill & Feed Dealers Assn.; Shirley Savoy Hotel, Denver, Colo.; sec., Olaf Erickson, 714 Cooper Bldg., Denver 2, Colo.

Feb. 23-26 — Colorado Livestock Days; Colorado State University, Ft. Collins, Colo.; chm., Dr. Lamar Esplin.

Feb. 24—Ohio Broiler and Market Egg School; Agricultural Administration Building, Ohio State University, Columbus, Ohio; chm., P. C. Clayton, Extension Poultryman.

Feb. 24-25—Virginia Feed and Nutrition Conference; Hotel Roanoke, Roanoke, Va.; co-chm., Wm. G. Ritchie, J. S. Ritchie & Sons, Petersburg, Va., and Paul M. Reaves, professor Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

Feb. 26—Illinois State Turkey Growers Assn.; Animal Sciences Laboratory, University of Illinois, Urbana, Ill.; sec., S. F. Ridlen, Poultry Extension Specialist.

March 1-3 — Ohio Grain & Feed Dealers Assn., Inc.; Neil House, Columbus, Ohio; sec., G. E. O'Brien, 710 N. Ohio Street, Greenville, Ohio.

March 19-20—Oregon Feed & Seed Dealers Association; Multnomah Hotel, Portland; sec., Russ Hays, 702 Lewis Bldg., Portland 4, Ore.

March 19-20—Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Dr. Richard D. Creek, Poultry Husbandry Department, University of Maryland, College Park, Md.

March 25—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati 2, Ohio.

April 2-4—Pacific Dairy & Poultry Assn.; Coronado, Cal.; sec., Carl E. Nail, 1304 E. 7th St., Los Angeles.

April 12-15—National Fisheries Institute; Hotel Commodore, New York City; asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

April 8—Purdue Egg Day; Purdue University, Lafayette, Ind.; sec., David D. Jackson, extension poultryman, Purdue University.

April 12-17—Grain Elevator & Processing Superintendents; Multnomah Hotel, Portland, Ore.; sec., Dean M. Clark, 1120 Board of Trade Bldg., Chicago 4, Ill.

April 23-25 — Joint Convention, Texas dealer and manufacturer groups; Hotel Texas, Ft. Worth; Texas Grain & Feed Dealers Assn., sec., Ben M. Ferguson, 614 Meacham Bldg., Ft. Worth; Texas Feed Manufacturers Assn., sec., Ben E. Schmitt, 3421 Park Ridge Blvd., Ft. Worth.

April 30-May 2—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., O. E. Case, 901 Wiley Bldg., Hutchinson, Kansas.

May 8-10 — Grain Processing Machinery Manufacturers Assn.; Chicago; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

May 10-12 — National Cottonseed Products Assn.; Mark Hopkins and Fairmont Hotels, San Francisco; sec., John F. Moloney, 43 N. Cleveland St., Memphis, Tenn.

May 11-13—American Feed Manufacturers Assn. Convention and National Feed Industry Show; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 15-16—Missouri Grain, Feed & Seed Assn.; Hotel Governor, Jefferson City, Mo.; sec., D. A. Meinershagen, Higginsville, Mo.

June 1-2—Central Retail Feed Assn.; Hotel Schroeder, Milwaukee; sec., Eldon H. Roesler, 1712 W. St. Paul Ave., Milwaukee, Wis.

June 7-9—Indiana Grain & Feed Dealers Association; Sheraton Hotel, French Lick, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis, Ind.

June 7-9 — Eastern Federation of Feed Merchants, Pocano Manor Inn, Pocano Manor, Pa.; sec., Austin W. Carpenter, Sherburne, N.Y.

June 8-10—Alabama Poultry Industry Assn.; Municipal Auditorium, Birmingham; exec. sec., W. L. Walsh, P.O. Box 567, Montgomery, Ala.

June 9-10—Association of Southern Feed and Fertilizer Control Officials; Velda Rose Motel, Hot Springs, Ark.; sec., Maurice B. Rowe, Virginia Dept. of Agriculture, 1123 State Office Bldg., Richmond, Va.

June 25-27—Canadian Feed Manufacturers Assn.; Bigwin Inn, Lake of Bays, Ontario; N. D. Hogg, Box 66, Station Q, Toronto, Ont.

July 10-14 — Georgia Feed Assn.; General Oglethorpe Hotel, Savannah, Ga.; sec., Will L. Kinard, 3240 Peachtree Rd. Bldg., Atlanta 5, Ga.

Sept. 13-14—Grain and Feed Dealers National Assn. (work meeting for directors, committees and members), Minneapolis; exec. v. pres., Alvin E. Oliver, 400 Folger Bldg., Washington 5, D.C.

Sept. 16-17—National Feed Ingredients Assn.; Pick-Congress Hotel, Chicago, Ill.; sec., Peter W. Janss, 212 Equitable Bldg., Des Moines, Iowa.

Oct. 6-8 — Northeastern Poultry Producers Exposition; Farm Show Building, Harrisburg, Pa.; sec., Dr. Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

Oct. 7-9—Texas Nutrition Conference; Texas A & M College, College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 14 — Animal Nutrition Research Council; Shoreham Hotel, Washington, D.C.; sec., Irwin Olcott, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32, Ill.

Oct. 14-15—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Agricultural Experiment Station Bldg., University of Kentucky, Lexington, Ky.

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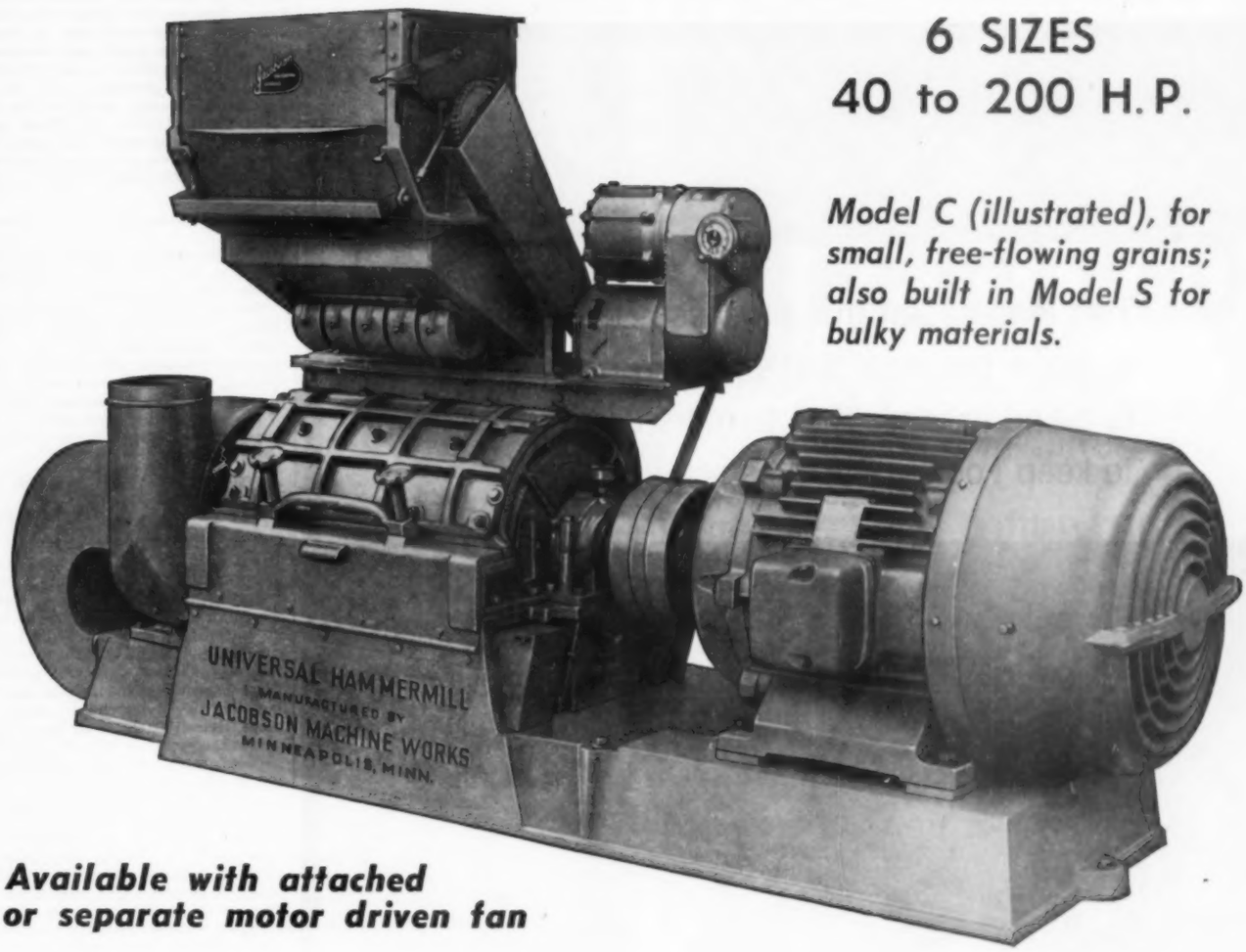
Model C (illustrated), for small, free-flowing grains; also built in Model S for bulky materials.



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Group Seeks to Boost Production of Broilers

ATMORE, ALA.—A group of local businessmen, farmers, feed manufacturing and chicken processing representatives met recently with F. A. Rew, Escambia County farm agent, to discuss the possibilities of increasing broiler production in the Atmore area.

Mr. Rew told the group that the Atmore area is conducive to broiler production, and that if more extensive production is established, "processors will be here to create the market." The county agent emphasized that something is needed to "prevent more of our farmers from turning from agriculture to industry."

The meeting centered around discussions of the cost of starting broiler production, the availability of feed and the demand for the finished product.

Indiana Poultry Group Endorses Formation Of Egg Council

LAFAYETTE, IND.—The Indiana State Poultry Assn. sponsored an open meeting in Indianapolis recently to discuss the possibility of forming an egg council as a department of the association, and to discuss the possibility of affiliating with the National Egg Council.

Fifty-six industry members representing all sections of the state and the directors of the association basically endorsed the formation of the "Egg Council of the Indiana State Poultry Assn."

The directors nominated Carroll Eiler, Warsaw, Ind., director of the association, to serve as chairman of this department. The following people were appointed to serve as an interim committee to establish the egg council: Hobart Creighton, Warsaw, Ind.; Clayton Cook, Frankfort, Ind.; Henry Shoulders, Ft. Branch, Ind., and Harold B. Walker, Jamestown, Ind. This committee-at-large will select the remaining members of the egg council on an area basis at a later date.

The association went on record endorsing the "whole-hearted" and continued support of the Poultry & Egg National Board's promotion program, and urged that the program be handled through the "Egg Council of the Indiana State Poultry Assn."

The Indiana "2½% Club," which was established many years ago with the hatchery industry, will be continued, and the support from the feed, sales, and service personnel with their once-a-year promotion drive with the feed industry to allied groups will be continued.

In addition, strong cooperation with the egg production and egg handling interests of the state will be developed by the egg council. The above committee will be meeting and formulating plans for this development in the very near future.

Vern F. Steckley, president of the American Poultry & Hatchery Federation, Kendallville, Ind., was present. He discussed the National Egg Council and its development. Also present was Ken Heideman, director of financing and membership relations, Poultry & Egg National Board.

CYANAMID DISPLAY—A new merchandising display and promotion designed specifically to stimulate retailers' sales during the winter months is being offered by American Cyanamid Co. to the feed, hatchery and drug trade. The promotion features Aureomycin chlortetracycline and Sulmet sulfamethazine in small packages for poultry and livestock. The products will be merchandised in a floor display pictured above. As an additional feature, participating retailers will receive, free, four containers of Cyanamid's new product, Aureomycin first aid spray in aerosol cans. These will sell to consumers for $2.50 each.

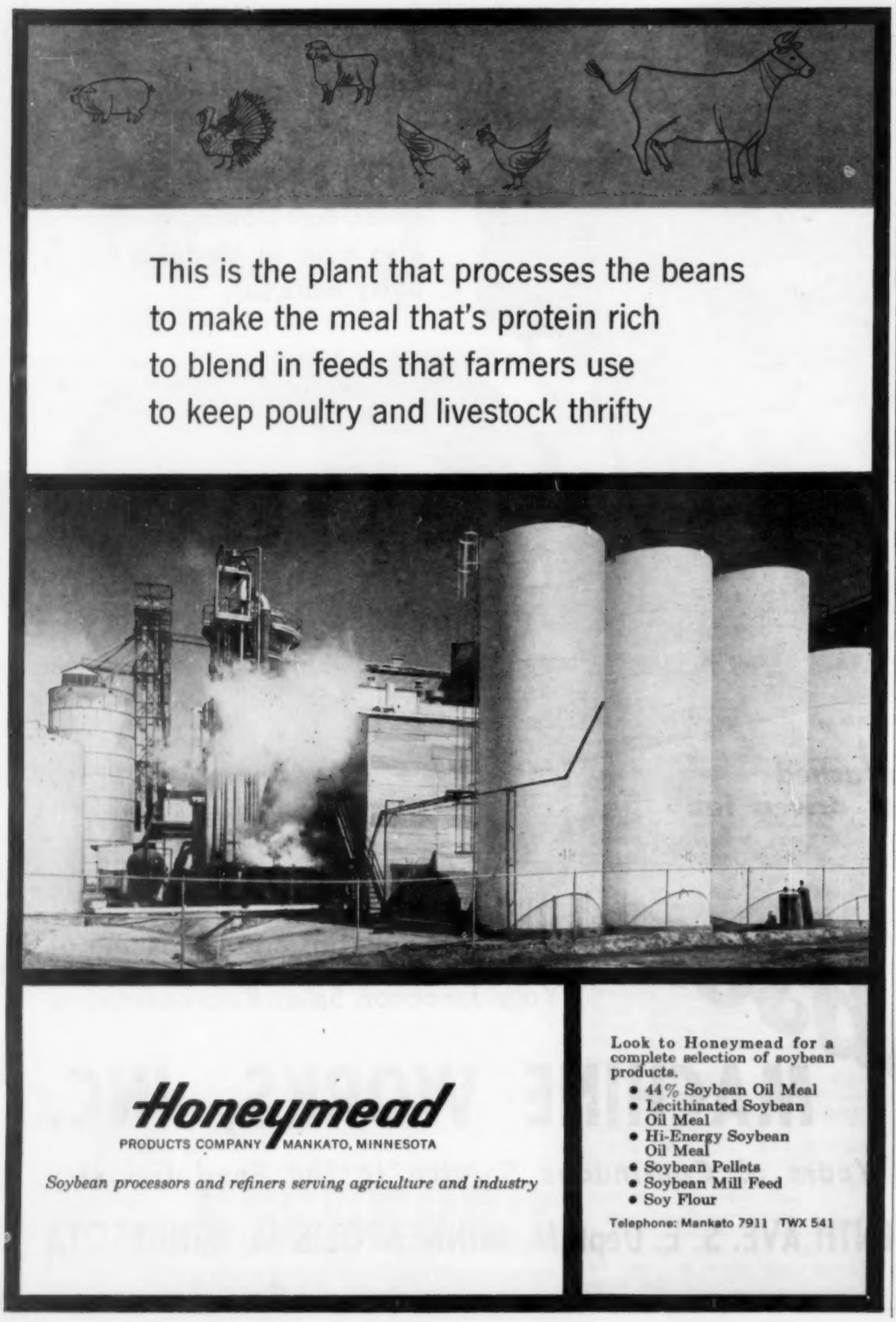
New Unit Will Raise "Clupak" Paper Output

NEW YORK—West Virginia Pulp and Paper Co. will equip a second paper machine for producing Clupak paper at its Charleston, S.C., plant, where an initial installation has been in operation since early 1958. According to David L. Luke, president, the new Clupak unit will increase West Virginia's capacity for producing the new stretchable paper to more than 150,000 tons annually.

Mr. Luke stated that the company expects to have the new unit operating in January.

Although production of extensible paper is presently limited to kraft grades, additional applications extending to a number of grades of paper are being developed by West Virginia research and product development teams. These teams are also carrying out continuing projects aimed at further improving the tough, workhorse characteristics of the basic products.

When stretchable paper was first introduced early in 1958, it was announced that other paper manufacturers would be licensed to produce Clupak paper. Two other major paper producers have recently been licensed through Clupak, Inc., and other major producers are expected to sign agreements in the near future.


This is the plant that processes the beans
to make the meal that's protein rich
to blend in feeds that farmers use
to keep poultry and livestock thrifty
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Program for Annual IAPI Fact Finding Conference Announced

CHICAGO—An analysis of the poultry industry as it relates to the patterns of a growing agri-business economy will open the 1959 Fact Finding Conference to be held Feb. 13-15 at the Municipal Auditorium in Kansas City.

Sponsored by the Institute of American Poultry Industries, the conference includes five program workshops and a complete poultry-and-egg trade exposition built around the conference theme, "New Dimensions in Management." An attendance of 3,500 is expected.

The analytical presentation of the poultry industry and its place in modern agriculture is a part of the management and marketing workshops to be held Feb. 13. In addition, the workshops will include discussions on practical cost accounting and cost analysis for processing operations. Persons attending the conference will also get a broad picture of new merchandising methods for turkeys, broilers and eggs. There also will be an analysis of changing patterns of population and their affect on merchandising.

At the research and new ideas workshop, present and future research will be discussed, according to Harold M. Williams, president of IAPI, who said, "particular emphasis will be on current projects involving new package ideas and improved processing techniques."

Reviews of flavor and tenderness in poultry products, discussions on chilling procedures and a presentation on materials handling to cut processing costs are highlights of the afternoon workshop Feb. 14.

On Feb. 15, the final day, a complete workshop will be devoted to a comprehensive analysis of contract egg production.

The conference exhibit, which is to be open throughout the three-day session, will be housed in the Municipal Auditorium's exhibition hall. Products, equipment and services—from breeding stock to management—will be on display in what has been termed "the most complete exhibit of its kind for the poultry and egg industry."

This exhibit has grown from participation by nine exhibitors in 1946 to its present size of nearly 150 companies. The IAPI said that 1959 will bring the largest, most complete exhibit ever presented at any Fact Finding Conference.

Special events scheduled during the session include the annual breakfast meeting for institute members and their guests Feb. 15, the fact-finders' banquet at Hotel Muehlebach Feb. 14 and a special program for ladies.

The sixth annual Junior Fact Finding Conference—for 4-H, Future Farmers of America, and Future Homemakers of America members—will run concurrently with the adult business conference.

Information on hotel accommodations and other conference details may be obtained from the Institute of American Poultry Industries, 59 East Madison, Chicago 2.

Feed Called "Biggest" Factor in Beef Outlook

BLACKSBURG, VA.—The biggest factor in the 1959 beef output is an abundance of feed, both range and grain.

"Most of all, the abundance of cheap feed," says R. O. Russell, economist at Virginia Polytechnic Institute, "is creating a changed set of relationships within the cattle business.

"It is giving a tremendous boost to feeding, and it is lifting feeder cattle and calf prices to an unusually high relationship to prices of fed cattle. The feed situation is contributing to a strong competitive feeder demand for heifers and heifer calves, which is preventing as many as usual from going into the cow herd," he added.

Mr. Russell is of the opinion feed prices will continue to be a major factor in the total livestock picture for years to come.

"Not only are feed crops large and their prices down," he pointed out, "but prices are almost certain to remain relatively low as supports are reduced. Producer approval of the new corn program for 1959 indicates an expanded corn acreage for next year.

"A continued strong feeder market, and a relatively weak fed market may be in the picture."

2 KILLED IN GRAIN TANK

SALINA, KANSAS — Shifting wheat in the bottom of a grain tank of a C-G-F Grain Co. elevator near Salina took the lives of two men recently. A third man escaped unharmed because he was small enough to slip through a 10-ft. long metal chute at the bottom of the tank. Vernon Gile, Falun, Kansas, and Cornelius Cooper, a Salina construction worker, were killed. Bob Mundell, Salina, escaped. Mr. Cooper lost his life when he tried to help the other two men, who had entered the tank to shovel the slow-moving wheat toward the discharge chute.

Carl Graning — Frank W. Meyer

NEW POSITIONS—Beardstown (Ill.) Mills Co., manufacturer of Critic Feeds, has promoted employees Frank W. Meyer and Carl Graning from territory manager to the position of regional sales manager. Mr. Granning, who has sold Critic Feeds for 26 years, supervises the northern region, and Mr. Meyer, with the firm since 1939, is in charge of the southern region. They are devoting much of their time to increasing dealers and company salesmen in their areas. The two men have seen the firm grow from a local area operation to dealer outlets in five states.

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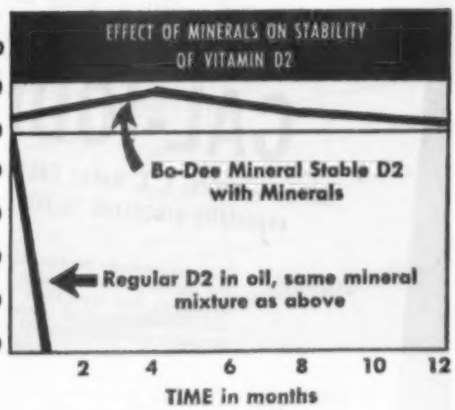
Tricalcium phosphate	13.00	Manganese sulfate	0.10
Magnesium sulfate	10.00	Cobalt sulfate	0.02
Iodized sodium chloride			20.00%



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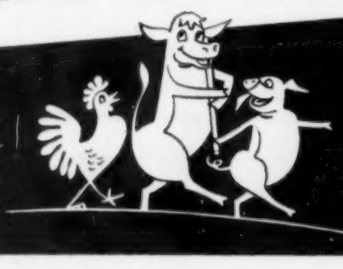

BILLBOARD ADVERTISING—Community Feed Mill, Princeton, Ill., has found billboards to be a valuable part of its advertising program. He uses three billboard showings per month alternated around five locations. The locations are changed every two months. Like everyone else, farmers are moving around over the highways a great deal, says Dexter Obenhaus, owner of the mill. He is convinced the program has made more dollars for his mill. Shown here is an example of the kind of advertising the firm has been doing.

Illinois Feed Mill Finds Billboard Ads Build New Business

By AL P. NELSON
Feedstuffs Special Writer

Billboard advertising, a medium used only infrequently by most feed firms, has proved to be a valuable part of the advertising program of the Community Feed Mill, Princeton, Ill.

Dexter Obenhaus, owner of the firm, said he has been using billboards in his area for quite a few years and is convinced that they help him get more business. He indicated that quite a few customers tell him they have noticed his billboards and were persuaded to go to him for a talk about their feed needs.

Mr. Obenhaus' billboard advertising program works this way: He contracts with a firm to supply him with locations and posters for $75 per month on a yearly contract. For this amount he gets three billboard showings per month on highways in the area. The billboard company has five locations in the region, and shifts Community's billboards every two months.

One of the five billboards is located right on the Community Feed Mill lot in Princeton. It's on a main street where many persons see it. Dexter Obenhaus and his men built the board, but the sign company maintains it. This board always contains a Community Feed Mill ad. Because the board is owned by the feed mill, Mr. Obenhaus is given a sizeable discount from the sign company annually.

Advertising Message

The billboards and posters are big, modern, and impressive, and they carry a highlighted message in each case.

One recent board showed a picture of a sow with feeders suckling her. Copy said, "Start Them Right with Holsum Sow and Pig Feeds . . ."

Another showed a picture of a couple of big steers, and the copy said, "A Little Goes a Long Way to Build Better Beef . . . Feed Holsum Feed." Holsum feed is the name of the Community Feed Mill line. They also make and distribute feeds made with Pillsbury concentrates.

Mr. Obenhaus also plugs his community on some of these billboard messages. Copy on one read, "Welcome to Princeton . . . Where Agriculture and Industry Meet."

Each billboard also carries the slogan, "Community Feed Mill, Princeton. . . . A Genuine Service Organization. . . ."

"Farmers move around a great deal these days," says Mr. Obenhaus. "They use the highways a lot, so why shouldn't we spend some of our ad budget reaching them through billboards. We are convinced that it pays."

Newspaper Advertising

Occasionally, too, Obenhaus will use a picture of one of his billboards in a newspaper ad. He is a constant user of newspaper space and finds that this ties in very well with the billboard advertising. He spends about 2% of his previous year's gross for advertising.

"A feed dealer has a great deal of vital technical feeding information to tell the farmer today," says this dealer, "and advertising is one way to help him do this educational job. We find through inquiries that many farmers do read feed ads in newspapers and magazines. They are anxious to keep up with feeding developments."

ADDS WAREHOUSE SPACE

GOLDFIELD, IOWA—The Farmers Elevator Cooperative here, which recently observed its 50th anniversary, has just completed a steel building for corn storage and to serve as a warehouse in the future.

The most complete line of DOG FOOD ingredients

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CORN KIB-LETS
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cooked . . . toasted
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expanded . . . kibbled
WHEAT FLAKES
cooked . . . toasted
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Nowhere else can you secure such a major part of your dog food ingredients. By combining your ingredient purchases in cars, mixed cars or LCL you are assured of freshness, and better inventory control with lower inventory investment. BOXER ingredients are manufactured by us specially for dogs—they are "prime" products, and not "by-products." Write for current prices and literature.

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Farm and Feed Salt NEWS

FROM INTERNATIONAL SALT COMPANY, INC.

HOW TO ESTIMATE YEARLY SALT NEEDS

The chart below gives average annual salt consumption for individual farm animals. With it, you can roughly estimate how much salt you should sell annually to each customer.

Dairy cattle	30-77 lbs. per animal
Calves	6-12 lbs. per animal
Swine	6-12 lbs. per animal
Lambs	3-6 lbs. per animal
Sheep	6-12 lbs. per animal
Beef cattle	12-24 lbs. per animal
Horses	12-36 lbs. per animal
Poultry (in mashes)	½-1 lb. per animal

POWERFUL SALES AIDS FOR BLUSALT—*FREE!*

To help you sell more high-profit Sterling Blusalt this year, you can get a variety of free sales aids from International. These include a colorful "Authorized Dealer" sign . . . an animated counter piece showing a cow actually licking a Blusalt Lik . . . and other attractive point-of-sale items. You can also get Sterling Blusalt ad mats and publicity notices that mention your name for insertion in local papers. Ask your Sterling representative, or write to us direct.

Did you know?

- Approximately 1,500,000 farm families in the United States derive all or a major part of their income from dairy cows.
- A flock of unthrifty chicks with a high death rate and retarded sex development was helped by salt, according to a report in the Journal of American Veterinary Medical Association. The ration of the retarded chicks contained only 0.18 per cent salt. An increase in the amount of salt (to 1 per cent of the total ration) resulted in immediate improvement in the condition of the flock.

Planned sales bring extra profits in trace-mineral salt, specialty items

Many successful dealers are finding that a well-planned record system pays off with extra profits in high-markup items such as Sterling Blusalt, medicinals and special feeds. Such a system provides an opportunity to remind customers when it's time to buy certain essential items they might otherwise overlook. The resulting regularity in customer purchases speeds inventory turnover and permits planned ordering.

Most farmers don't feed enough salt and trace minerals free choice. Do *your* customers a favor! Remind them to buy and feed Sterling Blusalt—salt plus 7 trace minerals (manganese, iron, sulfate sulfur, copper, cobalt, iodine and zinc) in scientifically derived proportions. Available in bags, blocks and Liks.

Twin Elm Farm
R.F.D. #2
Farmtown, U.S.A.
Charles Grey, owner

Dairy cattle	40
Calves and young stock	20
Beef cattle	10
Sheep	—
Laying hens	500
Broilers	—

PURCHASES

	ESTIMATED YEARLY CONSUMPTION	January	February	March	April
STERLING BLUSALT	3200 #	20 Cs Liks 3 bag	4 bags		
DAIRY FEED	75 tons	6 tons	7 tons		
LAYING MASH	20 tons	1 ton	1 ton		
WHEAT BRAN	3 tons	—	—		
SUPPLEMENT	1 ton	—	—		

One of the more common record systems is to use 5" x 7" cards, one per customer, as shown here. Why not start a file yourself? It's a big help to profitable selling.

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Boston, Mass.	Cleveland, O.	New Orleans, La.	Richmond, Va.
Buffalo, N. Y.	Detroit, Mich.	New York, N. Y.	St. Louis, Mo.

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Integration—Part 1

Integration Not Yet Widespread in Midwestern and Eastern Sections

• By Al P. Nelson
Feedstuffs Special Writer

EDITOR'S NOTE: Al P. Nelson, special writer, recently made an extensive trip through parts of the Midwest and East, calling on feed dealers and manufacturers. Some of his questions dealt with the extent of vertical integration. The accompanying article is the first of two articles in which Mr. Nelson reports on the results of his interviewing feed men on the subject of integration.

The vertical integration trend in animal agriculture may be growing, but it doesn't appear to have expanded so fast as we sometimes would be led to believe.

An unbiased field trip will convince almost any observer of that situation.

I traveled extensively recently through parts of Wisconsin, Illinois, Indiana, Ohio, Kentucky, Pennsylvania and New York, and I asked questions of many feed dealers and manufacturers about the extent of integration. Time and again I was told something to this effect:

"No integration around here. Hasn't got started yet to speak of. It's just about all in the broiler field so far. I hear there's some in other sections of the state on layers, hogs and dairy cattle. Not a single integrated plan as such, though, in this area."

"The raising and marketing of broilers in New York State is practically 100% on an integrated basis," one Empire State dealer told me. He has a large custom mill and does a thriving business with farmers who are not tied up with an integration plan. He produces and sells dairy, hog and poultry feeds, so he is not dependent on any one type of feed.

Expects It in Eggs

"Integration in the egg field also is progressing," this dealer said. "However, it is only a small percentage of all egg production in this area. But it will grow, for many large chains are offering premium prices for quality eggs. This stimullates integration in this field."

A small feed manufacturer in New York State who has seven retail feed stores within a 75-mile radius and who also sells to other dealers, reports: "The time is coming when a feed manufacturer must line up with integrated customers or independent customers. I think that the independent producer who maintains quality and good management is going to stay in business and make a profit, and I think he'll be able to sell his products. I am referring, of course, to eggs and poultry meats. So far as we are concerned, we are sticking with the independents and doing all we can to help them, through field men, to do a better job.

"There are chain stores that do not wish to be tied up with an integrated plan, and there are a good many large independent super markets that want to buy quality eggs and meats on the open market. I can't conceive of them going out of business, for they operate efficiently in many instances."

The writer is not saying that the extent of integration won't widen, but it does appear now that interest in integration is greater in magazines and newspapers and speeches than it is in actual situations.

While the integration trend may grow, the independent farmer, feed dealer or manufacturer isn't likely to be liquidated overnight. There are many people—including feed men, agricultural college experts and others—who believe that the capable independent farmer will survive and be able to compete with his integrated neighbor. Only time will give us the final answers.

Quality Emphasized

Meanwhile, integration, or the threat of it, is bringing home to farmers and others the importance of having farm products satisfy consumer demands for consistent quality.

Time was when the farmer thought the customer would buy milk as milk, eggs as eggs, pork as pork, etc. without regard to premium quality above an average grade. But customers—and there are millions of them with big food budgets—now are more discriminating food buyers. Such customers want yellow butter of good grade, quality eggs with the right color yolks and clean shells (white preferred in some areas), Grade A milk and lean pork, among other things.

The farmer, independent or integrated, must try to produce at a profit to himself what the customer wants. This fact is sinking into the agricultural mind in practically every category.

But some feed man say, there is no law of nature which says that the integrated farmer can produce something the independent farmer cannot. This independent farmer must produce equal or better products than the integrated farmer can produce, and he must also market his products competitively. It is in this latter category that the independent farmer needs help. Many still believe that the problem can be solved, and is being solved in some instances.

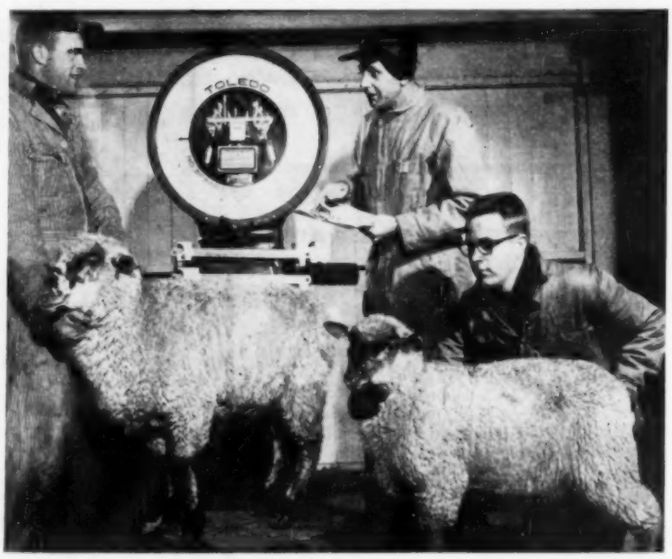
Where does the independent feed dealer or custom mill operator fit into a picture where integration is already started? Can he sell in this market? In one Ohio community, a prosperous custom mill operator was approached by an integrated marketer who asked for bids on supplying feed for 250,000 broilers raised by integrated farmers. The custom mill owner got the feed contract, because the integrator realized this mill operation was very efficient, with excellent bulk facilities. Under terms of the contract, the broiler raiser could bring in grain, if he had grain, to be ground and mixed with concentrates, or he could buy the complete feed.

In another case in an Ohio community a feed dealer told me that 15% of his feed business could be attributed to volume which came from integrated customers.

Can the average feed dealer, perhaps with the help of his feed manufacturer supplier, launch an integrated broiler or layer program on his own? Some have done it, but I talked with one Ohio feed dealer who tried it and got out of it at the end of one year. He had a total loss of $2,500.

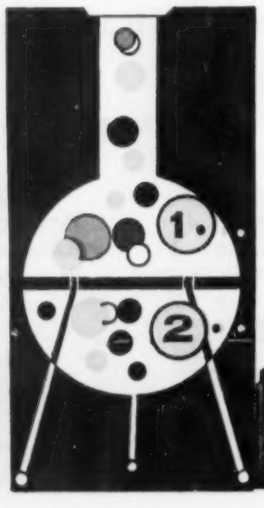
"I hooked up with a hatchery about 75 miles away that was anxious to work on a deal," he said. "We furnished the farmer the chicks, the equipment, the feed, and paid him so much per week for raising the broilers.

"My feed conversion rate was equal to that of the big producers, and yet I couldn't make a profit, even with the financing help from my feed supplier. I am convinced that my larger feed company competition had additional sources of ingredient profits which I did not have, and thus they



50 YEARS OF LAMB FEEDING—Fifty years of advances in nutrition made the difference between these two lambs fed in a special test at the University of Illinois. The animal at right was fed a ration of corn and alfalfa, typical of what was considered a good ration in 1908. The lamb gained only 13 lb. or .25 lb. daily for the 52-day feeding period. The lamb on the scales was fed a modern complete, mixed ration self-fed and pelleted. This animal gained 46 lb., or .88 lb. a day during the 52-day feeding test. Weighing the lambs in this photo are (left to right) Benny Doane, shepherd at the university sheep farm; Dr. U. S. Garrigus, head of the sheep division, and Robert Mohrman, graduate assistant who helped in the feeding project.

OUR "FORMULA" . . .



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Phone 3000 Emporia, Kansas

Dr. Thomas O. McMillan

JOINS STERWIN—Dr. Thomas O. McMillan has joined the staff of Sterwin Chemicals, Inc., New York, as a poultry specialist, according to Robert S. Whiteside, president of the company. Before joining Sterwin Dr. McMillan had been, since 1953, with the animal industry section, agricultural division of American Cyanamid Co., New York. He practiced veterinary medicine in Oklahoma from 1945 to 1953. Previously he was assistant state veterinarian in Oklahoma, and county agricultural agent in Texas from 1940 to 1942. He received his DVM degree from Texas A&M College.

could afford to stay in this integration contract, and I could not.

"I'm glad I took a long whirl at this. Now I know it's not for me, and I also found I could not talk all broiler customers into it. There are still some who raise small lots independently. I also proved to my customers that I was willing to try out a new idea. I even showed some of them my books, indicating my loss. Now I am back doing custom work, selling hog and laying mash and some broiler feed and doing all right. There are still enough independent farmers I can sell other types of feed, too. Besides that, I have a profitable farm supply store which rounds out my operation very nicely."

Swine Situation

In previous articles on integration which told of calls I had made on dealers and farmers in Wisconsin, Minnesota, Iowa and Nebraska, I did mention that there was some interest in partial integration plans for the raising of hogs. The offering of premium prices on lean hogs at some markets tends to direct attention to programs stressing better management, breeding control, etc. But for the entire state of Iowa at the time I found little evidence of integration in the raising and marketing of hogs. A decline in hog prices, one observer said, could change this trend.

On the recent trip through parts of the Midwest and East, I found very little evidence of integrated hog producing plans as yet. Farmers in those areas apparently had no trouble in marketing average type hogs on most markets. And there are some spots in Kentucky, Ohio and New York where quite a few hogs are raised.

The large poultry marketing organizations, independent or cooperative, are of course studying the integration program very carefully. Some such organizations have integrated broiler programs but buy eggs from independents on a quality basis, without a contract agreement.

We will examine the integration situation further in a second article.

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THE IMPORTANCE OF VITAMIN D FORTIFICATION

Scientifically balanced formulations now assure that feeders get all the known elements for animal nutrition in the feeds they buy.

Vitamin D fortification is especially important with today's practice of raising animals in confinement. Recently, even hogs are being raised in air-conditioned piggeries. This abbreviates the exposure of growing animals to the sun's rays, an important source of vitamin D_2.

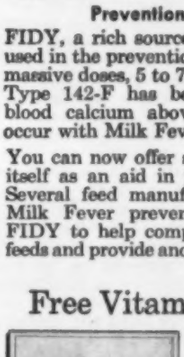
Since roughages are a variable source of this essential vitamin, a new significance is put on heavy vitamin D fortification of feeds with Fleischmann's FIDY Irradiated Dry Yeast.

Prevention of Milk Fever

FIDY, a rich source of vitamin D_2, is also used in the prevention of Milk Fever. Fed in massive doses, 5 to 7 days prepartum, FIDY Type 142-F has been found to maintain blood calcium above the low levels that occur with Milk Fever.

You can now offer special rations or FIDY itself as an aid in preventing Milk Fever. Several feed manufacturers offer a special Milk Fever prevention ration containing FIDY to help complete their line of dairy feeds and provide another service to dairymen.

Free Vitamin D Portfolio



Do you have the current monthly letters with digests of recent research and other information on vitamin D, calcium and phosphorous in the nutrition of dairy cows by Dr. G. C. Wallis, well-known nutritionist? Additional sets are available in portfolio form. Address STANDARD BRANDS INCORPORATED, Dept. FS-150, Agricultural Department, 625 Madison Avenue, New York 22, New York.

Fleischmann's F·I·D·Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

MORE Questions farmers ask about
vitamin D nutrition

Q: Would more vitamin D help keep my good producing cows in the herd longer?

A: The exact requirements of dairy cows for vitamin D are not known. Research with radioactive materials indicates that the ability to absorb and utilize calcium decreases markedly as cows become older, also that the availability of calcium reserves decreases with age. Since vitamin D is needed for the efficient use of calcium and also of phosphorus, it would appear that more vitamin D (up to 6,000 to 8,000 units per pound of regular ration) plus adequate calcium and phosphorus may help cows to produce profitably longer.

Q: When feeding massive doses of vitamin D_2 for milk fever prevention, should all cows in my herd be included?

A: No. For efficient herd management, only those cows with a previous history of milk fever or mature cows in herds where the incidence is high should be fed the massive doses of 30,000,000 units of vitamin D_2 per day for 5 to 7 days before freshening.

Q: How much vitamin D should my calves be getting?

A: According to work at the Pennsylvania Experiment Station, a minimum would be 400 to 500 units for each 100 pounds of body weight. Better growth and better looking calves were obtained when an additional 2,000 units of vitamin D per 100 pounds of body weight were added. Customary levels of vitamin D fortification for calf meals usually range from 1,000 to 4,000 units per pound of feed.

Q: Is vitamin D needed for protection against stress factors in swine feeding?

A: Yes, indeed. Rapid growth, early weaning, large-scale feeding operations under dry-lot and confinement conditions all create nutritional stresses in growing pigs which must be met by more highly fortified feeds, including adequate vitamin D. Multiple farrowing, large litters, and thyroprotein feeding to stimulate milk flow are examples of stress factors in sows for which ample vitamin D is indicated.

Q: How much vitamin D should my growing pigs be getting?

A: Increased rate of growth, early weaning, and confinement rearing as practiced in modern swine management indicate a need for more vitamin D. Further studies on vitamin D requirements of pigs under these conditions are needed. Many nutrition authorities recommend the fortification of pig starters and growing — fattening rations at about 500 units per pound of complete ration with somewhat higher amounts for the early weaned pig.

A. C. Wallis

Have You a Question?

If you have questions about animal nutrition concerning vitamin D fortification or Milk Fever prevention, write to Dr. G. C. Wallis, Director of Nutrition, Agricultural Department, Standard Brands Incorporated, 625 Madison Ave., New York 22, N. Y.

Standard Brands Incorporated
New York 22, New York

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From coast to coast, the story's the same. Dealers who concentrate on PILOT BRAND report steady sales, good year-'round profits, satisfied customers. As a matter of fact, PILOT BRAND is the largest-selling eggshell material in the world. Purity . . . quality . . . effectiveness . . . economy . . . are the reasons.

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Serving the Feed Trade For Over 20 Years

Poultry Inspection Act Now in Effect; Provisions Outlined

WASHINGTON—The U.S. Department of Agriculture has passed along a reminder to all processors of poultry and poultry products pointing out provisions of the Poultry Products Inspection Act, which became fully effective Jan. 1, 1959.

The reminder pointed out that except for exempted poultry producers and retail dealers, processors' plants must be officially approved before products from the plants can be shipped in interstate commerce after Jan. 1. Processors who have not taken appropriate action in this respect will be restricted to intrastate transactions.

The USDA also announced amendments to its inspection regulations governing the administration of the act. New sections in the amended regulations provide for the exemption of certain poultry processing operations from continuous resident inspection; set forth record-keeping requirements; contain provisions governing the inspection of poultry products offered for importation; set forth procedure for approval of compounds used in official establishments; change the basis of establishing the work week of processing plants by not requiring that exact hours of daily operations be specified, and redefine ready-to-cook poultry to permit wholesome kidneys to remain in the eviscerated bird.

Exempted Processing

Exemptions for certain "further" processing operations have been provided in the amended regulations, the USDA stated, because it has been determined that it will be impracticable to provide inspection of all poultry processing operations, and that exempting these "further" processing operations will aid in the effective administration of the act. The period of exemption, however, will not extend beyond July 1, 1960, and may be terminated at any time that it becomes practicable to provide inspection for such processing operations.

Included in the category of "further" processing operations are: canning of poultry products, preparation of poultry food products such as poultry pies, dinners, soup bases, ready-to-heat-and-serve items (fried chicken, turkey sandwiches, bouillon cubes) and similar products.

The regulations provide, however, that such operations are exempted only from the continuous inspection requirement. All other provisions of the regulations are applicable. For instance, plants performing these "further" processing operations must have been approved by the Poultry Inspection Service as to construction and facilities, and they must operate in compliance with the sanitary requirements of the regulations. The poultry used in the preparation of exempted products must come from approved or exempted plants.

The labeling of exempted products must comply with the act and be approved according to the regulations. Instead of carrying the federal inspection mark and the plant number, as labels for inspected poultry products do, labels for exempted products must carry the statement "USDA Exemption No. 000." Included in this statement must be the number of the exemption certificate issued to the processing plant.

Plant operators who believe that their products are in the exempted category should notify the poultry division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington 25, D.C., and obtain exemption certificates.

Exempted operations will be inspected by the Federal Poultry Inspection Service on an intermittent, spot-check basis, unless processors conducting these operations elect to avail themselves of the voluntary inspection service provided on a fee basis under the Agricultural Marketing Act.

Voluntary Inspection

The voluntary poultry inspection service provided under the Agricultural Marketing Act will be continued, and processors of exempted products may wish to avail themselves of this program to secure the mark of inspection on the products they produce that are exempted from the compulsory inspection program.

During the period of exemptions from the Poultry Products Inspection Act, the same circle inspection mark will be permitted to be used on products inspected under either the voluntary or mandatory program. This will permit processors who currently operate under inspection but who will be exempted under the Poultry Products Inspection Act to use supplies of labeling material which bear the inspection mark if the products are prepared under the voluntary program.

Inquiries concerning the poultry inspection program should be directed to the poultry division, Agricultural Marketing Service, Washington 25, D.C. Copies of the amended regulations may be obtained from the division.

Retired Grain Man, E. S. Johnston, Dies

PORTLAND, ORE.—E. S. Johnston, 67, ex-mayor of Pasco, Wash., retired businessman and commissioner of the Port of Pasco, died here Dec. 8 after an extended illness.

He operated the Johnston Grain Co. in Pasco for many years before associating with Continental Grain Co. in recent years. He was a commissioner of the port since 1941, helping to found it, and serving as chairman of the board for some years.

Planning a new mill or elevator?
KELLY DUPLEX can help you.

Maybe you've been thinking about a new mill—a new addition—or a new machine. Then again, maybe you've just been wondering how you can get MORE from your present space.

Whatever it is; we would like to talk to you about it.

We've shown a lot of others how good machinery and good planning can do wonders for their capacity, their efficiency, and their profits — at COMMON SENSE COST. The chances are we can do the same for you.

Don't hesitate to send us the coupon. There will be NO obligation—and NO high pressure salesmanship. We don't do business that way.

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We would like to talk to you about planning.
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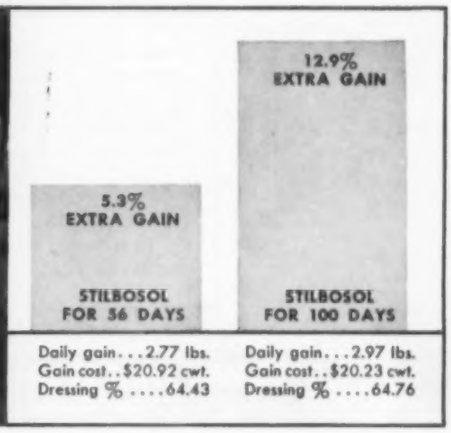
MR. FEED MANUFACTURER

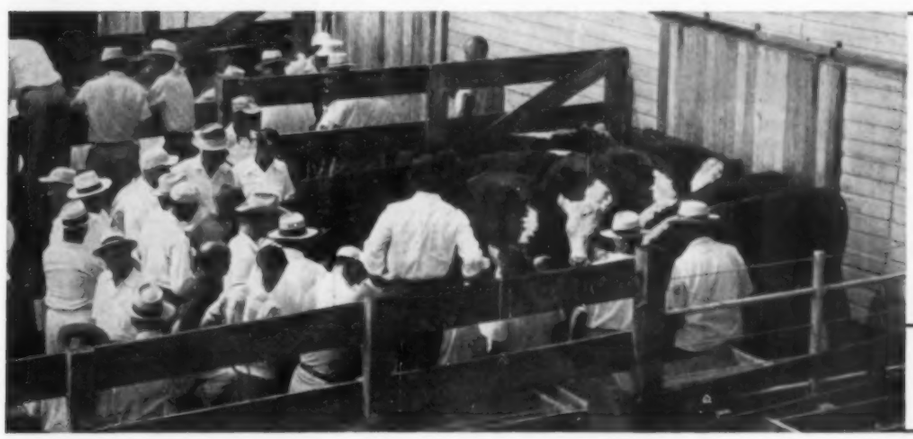
These two studies approached the same question from different directions and proved the same point...Stilbosol belongs in finishing rations all the time. Armed with facts like these from accepted, unbiased sources, your salesmen and dealers should gain more respect and believability from cattle feeders for your total cattle feed and supplement story. (Reprints of these feeding results are available upon request.)

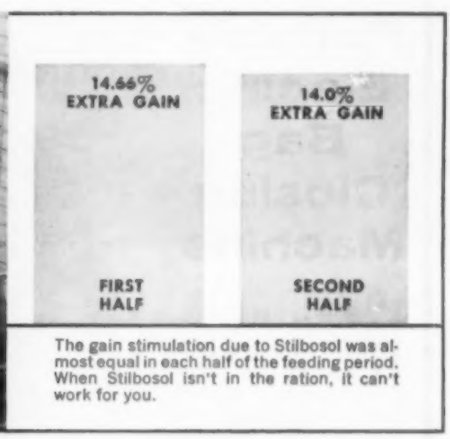
College evidence supports full-time Stilbosol® feeding

Cattle feeding results at Kansas State and Iowa State show how full-time use of Stilbosol boosts gains steadily throughout finishing period.



Kansas State College fed one group of 75 steers a Stilbosol ration for 100 days. A comparable group of 73 steers received the same ration, but Stilbosol was discontinued after 56 days. Extra daily gains averaged 12.9% for the group fed Stilbosol full time. Those cut off Stilbosol after 56 days gained 5.3% more than a control check group which was fed the same ration but without Stilbosol.




14.66%
EXTRA GAIN
FIRST
HALF
14.0%
EXTRA GAIN
SECOND
HALF
The gain stimulation due to Stilbosol was almost equal in each half of the feeding period. When Stilbosol isn't in the ration, it can't work for you.

Iowa State College analyzed six experiments to see what difference there was, if any, in gains made because of Stilbosol during the first half of the feeding period and the second half. Extra daily gains due to Stilbosol were 14.66% in the first half, 14.0% in the second half . . . less than ⅔ of a percent difference.

While these two studies checked the value of full-time Stilbosol feeding from entirely different directions . . . they reached the same basic conclusion. The Iowa State study shows that Stilbosol works for extra gains every day it is fed. The Kansas State test shows that extra gains do not continue if Stilbosol is removed from the ration. Both show that extra gains due to Stilbosol are consistent and steady. Both show that it pays to feed supplements with Stilbosol during the entire finishing period.

Stilbosol®
(diethylstilbestrol premix, Lilly)
Lilly

MAKERS OF HYGROMIX® (*S. hygroscopicus* fermentation products, Lilly)
Procaine-Penicillin-G • Vitamin B-12

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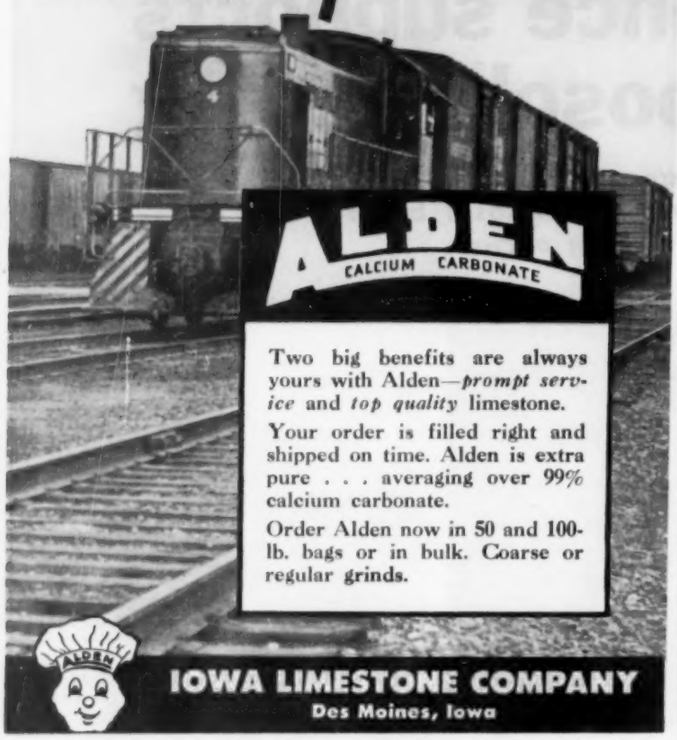
Same Day ON ITS WAY . . . to another SATISFIED USER



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Your order is filled right and shipped on time. Alden is extra pure . . . averaging over 99% calcium carbonate.

Order Alden now in 50 and 100-lb. bags or in bulk. Coarse or regular grinds.

IOWA LIMESTONE COMPANY
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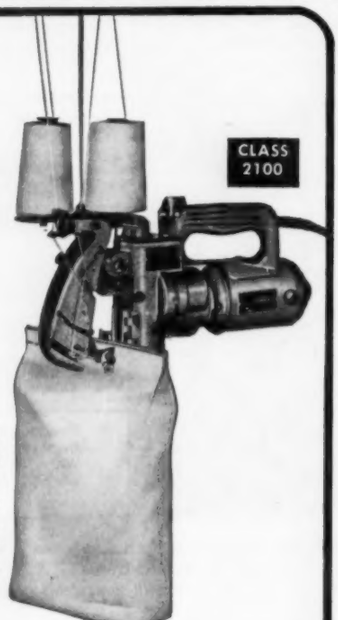
ALDEN, Standard of Quality and Service for Over 35 Years

NEW! Portable Electric Bag Closing Machine



HERE is a handy little machine that makes bag closing fast, easy, and economical. It is recommended where operations are limited or intermittent and do not justify installation of large, high production machines.

- **LIGHTWEIGHT**—9½ pounds. Carry it anywhere. No installation; requires only an electrical outlet.
- **POWERFUL**—Exclusive top and bottom feed for greater power and production. Direct drive motor with thumb control button.
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- **SAFE**—Anyone can operate it. No special training required. Can be obtained with overhead suspension. Also, can be supplied with pedestal bracket. Send for descriptive literature.

Union Special® MACHINE COMPANY
Originator of Filled Bag Closing Machines
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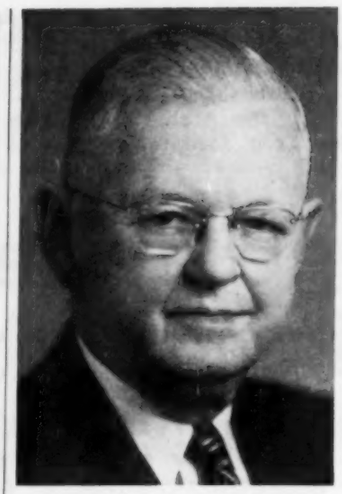

Sims S. Adair

Willard J. Davis

ADM TREASURER RETIRES—Sims Adair, one of Archer-Daniels-Midland Co.'s oldest employees in years of service, has retired at age 65 from his position as a director and treasurer of the Minneapolis company. He is being succeeded as treasurer by Willard J. Davis, who has been assistant treasurer and budget director. Mr. Adair has been associated for 42 years with ADM and Commander-Larabee Milling Co. Mr. Davis, elected assistant treasurer of ADM last April, joined the company in 1942 after several years with the Minnesota state income tax division.

FDA Gives Permit For Microbial Pesticide

WASHINGTON — Marketing of food and feed crops that are treated with a microbial pesticide, Bacillus thuringiensis Berliner, will be permitted under a temporary exemption from the requirement of a Food and Drug Administration tolerance, George P. Larrick, commissioner of food and drugs, has announced.

Referring to the new pesticide as a possible useful "bacteriological warfare" agent against certain insects, Mr. Larrick said that the FDA exemption provides authorization for the first time to apply this type of pesticide directly to food crops. Milky disease bacteria have been widely used for control of Japanese beetle, but these have been applied only to the soil, not directly to crops.

Before clearing use of the new microbial pesticide under the Pesticide Amendment to the Food, Drug, and Cosmetic Act, FDA required the manufacturer to provide scientific data showing the proposed use is without hazard to health. Data showed the microorganisms were not pathogenic (disease-carrying) to warm-blooded animals. Tests in which human volunteers ate and inhaled the substance showed no evidence of ill effects.

The Food and Drug Administration action was taken in connection with the granting of an experimental permit for one year by the U.S. Department of Agriculture to the manufacturer of the new pesticide, Pacific Yeast Products, Inc., Wasco, Cal. Under the USDA permit, distribution is planned to selected growers in 16 states, Puerto Rico, the Territory of Hawaii and Australia. The substance will be applied as a dust or spray to protect crops against insect pests including cabbage looper, imported cabbage worm, alfalfa caterpillar and certain other moth-type insects that, in the worm stage of growth, feed on and destroy crops.

In making the announcement, Mr. Larrick said: "The development of new safe pesticides to protect our food supply contributes to progress both in agriculture and in public health. During the year's trial period requested by the manufacturer, FDA will be observing closely. If no question arises and the product proves useful and practicable, the manufacturer may ask clearance for general commercial use."

Appointed by USDA

WASHINGTON—Galen P. Briggs, Frederick, Okla., grain producer, and Dallas E. Western, Quaker Oats Co., Chicago, have been named to the grain research and marketing advisory committee by Ezra Taft Benson, Secretary of Agriculture. The grain committee is one of 24 USDA commodity and functional research and marketing advisory committees.

GIVE HIM ADVICE HE'LL APPRECIATE

Remind him to order Morton T-M Salt. See page 59.

Plump Turkeys with Less Protein

By R. D. Carter and J. W. Wyne
Ohio Agricultural Experiment Station

EDITOR'S NOTE: This article is a report on tests at the Ohio Agricultural Experiment Station which indicate that young turkeys economically can be fed less protein. The article is from Ohio Farm and Home Research, publication of the Ohio Experiment Station. The authors are both with the poultry science department.

How much protein do young turkeys need for best growth?

Tests at the Ohio Agricultural Experiment Station indicate that growers might be feeding their birds mash richer in this nutrient than is necessary.

Feedstuffs that provide protein and energy make up the largest cost of ingredients that go into a turkey ration. Protein is probably the most critical of these nutrients.

Not much is known about the protein requirements of turkeys between the ages of 8 and 16 weeks. Therefore, trials were conducted with birds of this age, using both large-type and small-type white breeds.

Many feeds being used by growers during this period contain as much as one fourth protein. But the tests show that young birds make just as fast gains, and feed conversion is as good with much less protein than this.

Amino Acid Supplement

Furthermore, by supplementing very low protein rations with certain amino acids—building blocks needed for protein manufacture—the amount of protein needed in a ration to get good gains can be reduced. This system is not practical yet because of the relatively high cost of some amino acids. Two of those tried in the tests were methionine and lysine.

When these two amino acids were mixed in with turkey feed with only 14% protein, the turkeys grew well and feed conversion was good in the small-type whites.

Without added amino acids, rations containing 20% protein were found to be adequate for large-type white turkeys from 8 to 16 weeks. A ration with as low as 17% protein gave almost as good weights in small-type whites as rations with larger amounts of protein.

Three trials were conducted to determine the optimum protein requirement of young turkeys.

In all tests, the poults were raised up to 8 weeks on a 26% protein, all-mash starter. Then they were weighed and distributed into experimental pens.

In the first trial, rations containing 20, 23 and 26% protein were fed to duplicate groups of large-type white turkeys from 9 to 16 weeks. In the last trial, large-type whites were used again and fed rations containing 14, 17 and 20% protein.

Regardless of the level of protein, no differences were noted in the average weight of birds in the first trial at 16 weeks. Turkeys fed the 20% protein ration grew just as well as the birds fed the 26%. Feed conversion, however, improved as the protein was reduced from 26 to 20%.

In the second trial there was essentially no difference in average weights of the birds at 16 weeks, regardless of protein level. Birds fed the 17% ration weighed a little less than those fed the higher levels, but the difference was not significant. As in the first trial, feed conversion improved as protein was reduced.

Minimum Protein Level

To find the level at which protein might be detrimental to turkey growth, the third trial was conducted. Protein was cut back to as low as 14%. This lowest level was not adequate to keep large white turkeys growing fast. Rations with 17% protein were on the borderline. Just as in the first test, 20% protein rations brought about optimum growth and feed conversion.

The bigger type bird needs more protein, tests bear out. Twenty per cent was the lowest level of protein that could be fed and still result in good growth in the larger type turkeys. But with the small birds, protein could drop as low as 17%. Large-type whites average about 20% heavier at 16 weeks than the small-type. At this age, large-type white males are about 26% heavier than the females. Small-type white males are about 32% heavier than females. This brings up the future possibility of formulating different rations for males and females. Then females could be fed cheaper than males.

The right amount of protein in a turkey ration is important, but even more important is the quality of the protein. Amino acids must be present in the feed in the right balance so the birds can properly use them. In most poultry feeds, methionine and lysine are the acids that are limiting.

In tests, methionine alone did not stimulate turkey growth when added to a 14% ration. Lysine improved growth when fed a .15% level, but improved it even more at a .31% level.

If the cost of lysine falls, turkey growing rations could be improved by its addition. But now it would be more economical to feed the 17 or 20% ration, depending on whether you raise a small or large turkey.

Amino Acid Supplementation of Low Protein Turkey Growing Rations

Ration	Average weight 16 wk., lb.	Feed conversion 8-16 wk.
17% Protein	7.6	3.9
14% Protein	7.1	4.1
14% Protein + 0.4% methionine	7.0	4.1
14% Protein + 0.15% lysine	7.3	4.1
14% Protein + 0.4% methionine + 0.15% lysine	7.5	3.9
14% Protein + 0.4% methionine + 0.31% lysine	7.6	3.8

Protein Requirements of Large and Small-type White Turkeys

Per cent protein	Trial 1 — Large-type whites: Av. wt. 16 wk., lb.	Trial 1 — Large-type whites: Feed* conv. 9-16 wk.	Trial 2 — Small-type whites: Av. wt. 16 wk., lb.	Trial 2 — Small-type whites: Feed* conv. 8-16 wk.	Trial 3 — Large-type whites: Av. wt. 16 wk., lb.	Trial 3 — Large-type whites: Feed* conv. 8-16 wk.
14					8.8	4.6
17			8.4	4.3	10.5	3.3
20	10.7	3.4	8.6	4.4	10.8	3.2
23	10.7	3.5	8.6	4.5		
26	10.8	3.6				

*Pounds feed per pound gain.

NEW OPPORTUNITIES FOR FEED DEALERS

Manufacture feed and make a double profit...

Small inventory, a brand name known for quality, and Murphy's Franchise offers you new profit opportunity

Now you can collect the profit you would make as a dealer, plus the profit of a feed manufacturer, with an exclusive Murphy Feed Manufacturing Franchise.

As a manufacturer, you can make your retail profit on the Murphy's Concentrate which is used as a base for the manufactured feed. In addition, you can make your regular profit on the oil meal, the grain, and other floor stocks; plus a service charge on the mixing and bagging. You can pocket this profit, or use part of it to lower your price and meet any competition. Branded bags are available at cost from the Murphy company, so you can trade on this brand name which is famous for feed quality.

As a Murphy dealer, you can continue to sell Murphy Concentrates to customers who prefer to feed their livestock and poultry this way. This business will continue to bring in money, year after year.

And since your regular Murphy Concentrates are also your manufacturing feed base, inventories stay low and uncomplicated. It's simple because Murphy's Concentrates, locally grown grains, and inexpensive floor stocks are all you need to manufacture a full line of feeds already known for quality.

Talk this new manufacturing opportunity over with your Murphy District Distributor when he calls on you. Discover the double profits that can be yours.

New customers...new business...new profits with MURPHY'S

MURPHY PRODUCTS COMPANY, BURLINGTON, WISCONSIN

commercial use."

Remind him to order Morton T-M Salt. See page 59.

Efficient Operation, Customer Service Build Nebraska Firm

"Because we are well organized, we can get by with a small employee load and can hold down the overhead."

By Jess F. Blair
Feedstuffs Special Writer

Efficiency of operation and good customer service, two requisites for success in any feed store, have been major factors in building a growing business for the Beatrice (Neb.) Hay & Feed Store.

Jay Timmons, owner, entered the feed business with a small hay mill about 15 years ago, and has expanded it into one of the busiest firms in town. He handles a major line of feeds and does custom mixing.

Efficiency of operation has come over the years with renovated and custom-built machinery, with a small, but capable, group of employees and with a merchandising program that takes care of slack seasons.

Customer service given by the firm includes a willingness to meet any request, making deliveries, inspecting livestock and loaning storage facilities to customers.

Since the business originated with a hay mill, hay has been and continues to be a big part of the business. Clarence Hosenkamp, mill foreman, said the area is one of family farms, and most farmers of the area prefer to feed some of their own grain and hay.

GROWING FEED BUSINESS—Beatrice (Neb.) Hay & Feed Co. has built a large business with good customer service and has made it pay with efficiency of operation. Since hay is plentiful and cheap in this part of Nebraska, the firm uses large amounts of hay in the rations it mixes for farmers of the area.

"Our main job is to grind this homegrown feed, blend it into a suitable ration and make it palatable," he said.

The palatability comes from molasses which is a major ingredient at the mill. During the winter months the mill often sells 20 tons of hay and molasses per day. Farmers have their own requirements, but a general mixture will be 75% hay and 25% molasses.

"This hay-molasses feed is especially popular with farmers who feed cattle and sheep during the winter," said Mr. Hosenkamp.

Equipment

Much of the machinery at the mill has been renovated and some custom-built to take care of the firm's operations. Equipment includes a hammermill, a mixer, roller mills, a grinder for corn cobs and a crusher that crushes them.

Mr. Timmons has five large ingredient bins, from which feed can be carried into the grinder and then to a waiting truck. He can also bring in ground hay and corn cobs and mix them with molasses in any proportion, and then auger the mixture into a truck or sacks.

The molasses tank holds 11,000 gal. The tank is electrically heated and there is another 3,000-gal. tank underground. The molasses is pumped from the large tank into the smaller one, and from there sent to the mixer.

Mr. Timmons notes that the hay-molasses feed is bulky, so farmers often buy in larger quantities than they have storage for. In such cases, he loans the farmer a 2.8-ton metal tank. There is no charge for this, however it is understood that the man use it for the purpose intended.

Customer Service

One of the main principles on which such a business is built is customer service. This includes many things, such as being able and willing to make any mixture, adding protein supplements, making deliveries and inspecting the farmer's livestock.

The firm has a 6½-ton delivery truck, open at the top with a delivery auger at the bottom. The exit spout

BOOKKEEPER—Mrs. Jay Timmons, wife of the owner of Beatrice (Neb.) Hay & Feed Mill, is bookkeeper for the firm and also helps manage when her husband is away. "We try to stay busy," she said of the firm. "Because we are so well organized, we can get by with a small employee load and can hold down the overhead."

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can be turned upward to push feed through an opening 11 ft. high. The truck is divided into four compartments.

Since some feeders have their own ideas on feeding mixtures, Mr. Hosenkamp is able to make any mixture or size grind at a moment's notice. Most of the clover and alfalfa hay is passed through a ⅝-in. screen; however, the brittle hay is ground to ½-in. lengths. For making meal, a 1/16-in. screen is used.

Mr. Timmons has developed a big business in corn cobs. Poultrymen and swine owners use them for litter; dairymen and feeders mix them with molasses and other ingredients for feed.

"We can grind about six tons of cobs an hour," said Mr. Hosenkamp. "They are brought to the grinder by conveyor belt and then either mixed with other feed or taken separately into trucks or a storage bin. A lot of crushed cobs are sold to poultrymen in this area. For this purpose we push the cobs through a 2-in. screen."

Another growing sale of crushed cobs is for garden mulch. Much of this growing trade is among town residents, but the Timmons' cobs are sold throughout the firm's 35-mile trade radius.

In developing this line, Mr. Timmons has been able to tighten up the slack seasons. He buys the corn cobs in large quantities for low prices, hauls them to the mill and piles them in huge piles until ready for grinding or crushing.

T..is busy year-around feed mill has a small staff; yet each one is a specialist in his line. Mr. Timmons works with farmers and feeders, serves as field man and also promotes new projects. Much of his time is spent outside the mill.

His attractive wife is bookkeeper and often serves as office manager in Mr. Timmons' absence. Clarence Hosenkamp is kept busy with the mill equipment. He is an expert machinist and daily inspects machinery.

"We've got 29 electric motors in the place," he said, "so a big part of my work is in keeping things running."

The rest of the staff is composed of one mill hand and the truck driver. When the driver is not making deliveries, he works in the mill.

Try to Stay Busy

"We all try to stay busy all the time," said Mrs. Timmons. "Because we are so well organized, we can get by with a small employee load and hold down the overhead."

Most of the firm's business is with small farmers who keep a few brood sows, 200 to 300 hens and feed a limited number of cattle during the winter. These customers are somewhat different from the large operators in other parts of the country, because they like to trade at one place and often want small quantities of feed mixed. To accommodate these customers, Mr. Timmons will grind as little as 500 lb. at one time.

Since he knows his customers so well, credit losses have been negligible. The firm seldom has over $3,000 out on credit, and all this is paid eventually.

"We usually know the man's plan of operation," said Mrs. Timmons. "A dairyman or poultryman will pay regularly, but a farmer feeding out 50 head of cattle cannot pay until he sells his cattle. However, most feeding operations are financed elsewhere. We extend credit only for short periods, and usually have some understanding on the date of payment."

Dr. Salsbury's Plans Turkey Disease School

CHARLES CITY, IOWA — Five short course sessions on turkey diseases have been scheduled by Dr. Salsbury's Laboratories, Charles City. The four-day sessions, to be held at Charles City, are scheduled for Jan. 13-16, Jan. 27-30, Feb. 3-6, Feb. 17-20 and March 3-6.

According to C. M. Galloway, registrar for the series of classes, the program will include practical education in turkey diseases, management, sanitation and training in service work, as well as the proper use of drugs in treating and preventing diseases.

"The class includes a wide range of subjects covered in a thorough manner, along with approximately 40% of the total class time being devoted to clinical and laboratory diagnosis where the student has an opportunity to post diseased specimens and render a diagnosis," Mr. Galloway explained. "An adequate staff of poultry specialists and the controlling of our student enrollment allow intensive and personalized attention for each student."

The starting time for each session is 8 a.m. on Tuesdays, allowing travel time on Mondays, with registration at the educational center each Monday afternoon before the sessions, or at 7:30 a.m. on Tuesday mornings. Classes are completed on Friday afternoons so Saturdays are free for travel.

A $15 tuition fee covers the cost of clinic birds and material used in the course. Enrollments are limited and applications are accepted in the sequence in which they are received.

Mr. Galloway mentioned that further information or answers to questions may be obtained by writing the company's headquarters office in Charles City, or by contacting any of the firm's territory managers.

M.F.A. Buys Property For Future Expansion

COLUMBIA, MO. — The Missouri Farmers Assn. has purchased four pieces of property near its headquarters building here, giving the association ownership of an entire city block.

An M.F.A. spokesman said the association has no immediate plans for the properties, explaining that the land was acquired to keep the block intact for possible future expansion of parking facilities or enlarging the association headquarters building.

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FINISHING MARKET TURKEYS

Suggestions on Feeding Systems and Feed Formulation for Turkeys Being Finished for Market

By Dr. J. R. Couch
Texas A&M College

EDITOR'S NOTE: Suggestions and recommendations on feeding systems and feed formulation for turkeys being finished for market were presented recently by Dr. J. R. Couch, departments of biochemistry and nutrition and poultry science, Texas A&M College, College Station. Dr. Couch's paper—given before the Turkey Short Course and Show at the University of Missouri—is reproduced here.

It has been a general practice for some time for turkey producers and feed manufacturers to start the turkey finisher program at the beginning of the 17th week. Field reports show that hens are being finished at 20-22 weeks of age weighing 13½ to 15 pounds, and toms at 24-26 weeks of age weighing 25 to 28 lb. The turkey producer and the feed manufacturer have become more and more aware that turkeys should be sold as soon as the birds are finished.

One of the problems in this regard has been locating a market for the finished product if the birds happen to be ready for the processor out of season or prior to the normal time when the market opens to have the birds ready for Thanksgiving and Christmas. An enormous amount of feed is required to maintain both hens and toms on a day to day basis after the birds are finished. It should also be pointed out that the amount of feed required to put additional pounds on the birds increases as the weight of the bird increases.

SYSTEMS OF FEEDING: There are two systems of feeding which can be used for finishing market turkeys. These are: (1) the use of a complete feed and (2) the use of a concentrate with grain. It was first pointed out by the speaker that best results could be obtained by using a complete feed for turkeys throughout the growing and finishing periods at the 1957 meeting of the National Turkey Federation.

Results from the Massachusetts Turkey Random Sample Tests presented before the 1958 National Turkey Federation meeting by Dr. M. L. Scott of Cornell University, also illustrated the fact that best results with regard to maximum weight and feed conversion were obtained by the use of a complete feed through the growing and finishing periods.

It has been repeatedly pointed out to the writer that the use of a complete feed often leads to a slightly higher feed cost which is traceable to transportation costs involved in getting the grain to the mill and transporting the same grain back to the turkey producer after mixing. This has led to the development of various methods for mixing grain with the concentrate and in effect placing a complete feed before the turkeys. The grain may or may not be ground prior to mixing with the concentrate. The concentrate may vary in protein content from 27 to as high as 40%. There are instances at the present time where turkey producers are purchasing concentrates and mixing such concentrates with grain on the farm. Grain again may be ground or fed without grinding.

Dr. Blakely, Canada Department of Agriculture, and Dr. H. H. Thayer, Oklahoma State University, presented data before the 11th World's Poultry Congress, Mexico City, which showed conclusively that the growing turkey does not have the inherent ability to properly balance protein and energy intake when fed mash and grain on a free choice basis. Dr. Blakely reported experiments conducted over a period of five years which showed that the turkeys would consume uneconomical amounts of concentrate, when allowed free access to the pelleted concentrate and to whole grains.

Dr. H. Yacowitz, Squibb Institute for Medical Research, New Brunswick, N.J., presented data before the 1956 Texas Nutrition Conference which illustrated the necessity of providing formulas of different composition to meet the nutritive requirements of male versus female turkeys. Dr. Thayer again, before the 11th World's Poultry Congress, presented evidence which indicated that hens and toms should be grown in separate pens so that the protein and energy requirements of each sex could be more fully met.

It might be wise to consider separating the hens and toms at the end of the 16th week. It is generally accepted that 15 to 16% protein will adequately take care of the protein needs of the hens during the finishing period (16 to 22 weeks). Field evidence indicates that the toms should have an 18% protein formula during the finishing period from 16 to 20 weeks, at which time the protein may be decreased to 16%.

It has repeatedly been called to the attention of the writer during the 1958 growing season that white feathers, indicating a deficiency of lysine, continue to appear in flocks where it

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is known that the formulas are well fortified with regard to protein, vitamins, unidentified growth factors, antibiotics, arsonic acid and energy. It is the opinion of the writer that the protein level may simply be too low or that under conditions of stress food intake may be reduced and white feathers tend to appear. The occurrence of white feathers in a flock is often, although not always, limited to the toms. Again, this is an indication that a higher level of protein and more specifically of lysine is required by the male than by the female turkey.

Studies of nutritional requirements have shown that rapid growth rate is accompanied by an increased need for nutrients. It is known that males grow more rapidly and use feed more efficiently than do females. Males should have a higher nutritional requirement. It may also be pointed out that turkey hens fatten and finish at an earlier age which may be traceable to the estrogenic hormones secreted by the female. In the final analysis it would be desirable to use 18% protein in the feed for turkey toms from the 16th to the 20th weeks, at which time the protein content of the formula may be decreased to 16% during the final finishing period.

LEG WEAKNESS: Leg weakness continues to be a problem in rearing turkeys and is particularly noticeable during the finishing period. Toms are more likely to be affected than hens and will tend to show the leg weakness condition at about 16 weeks of age. The turkey producer should attempt to ascertain the type of leg disorder present in the flock by taking some of the affected birds to a good poultry diagnostician or to the poultry science department of the state university. The point in question here is to determine whether the birds are affected with synovitis or leg weakness.

Leg weakness can be prevented by proper feed formulation. It is imperative that the formula contain enough calcium, phosphorus, manganese and zinc if the leg weakness is to be prevented from a nutritional standpoint. On the other hand, if synovitis is the affliction, then the birds should be treated with the high level of broad spectrum antibiotics. The latest field information indicates that much more work should be done toward the prevention and/or cure of synovitis.

The writer's recommendations for mineral levels are as follows: 2% calcium, 1% phosphorus, and ½ lb. of manganese sulfate, and ½ lb. of zinc sulfate per ton of finished feed for the prevention of leg weakness.

UNIDENTIFIED GROWTH FACTORS: Although it is true that fortification with unidentified growth factor sources might be reduced during the finishing period, it is thought that it would not be wise to discontinue the use of these sources in the finisher feed. The three unidentified growth factors which are in common usage in feed are the "fish factor," the "whey factor" and the "alfalfa factor."

Dehydrated alfalfa meal is the best and most practical source of the alfalfa factor and should be included in turkey finisher feeds at a level ranging from 2½ to 3%.

Sources of the whey factor include dried whey, or whey products, distillers dried solubles and dried brewers yeast. The turkey finisher formula should contain a minimum of 2½ to 3% of any one or a combination of the whey factor sources listed. Dried brewers yeast also contains an additional unidentified factor which has been shown to be necessary for the prevention of leg weakness in growing turkey poults.

Sources of the fish factor are: antibiotic fermentation residues, condensed fish solubles and fish meal. The factor is also found to a lesser extent in distillers dried solubles, meat and bone scraps and dried brewers yeast. The antibiotic fermentation residue or fermentation products are the most concentrated practical source of the fish factor with which the writer is acquainted. Certainly no more than 10 lb. per ton of a good fermentation residue is required to provide a source of the fish factor during the finishing period in the feeding of turkeys.

BLUE COMB: Blue comb may occur in turkey toms at 20 to 22 weeks of age, shortly after the hens are marketed. The first indication that the turkeys may have blue comb is that the toms may go off feed. Feed consumption decreases decidedly, and there is an excessive amount of fighting and disturbance in the flock. When the birds are taken to a poultry diagnostician, blue comb may not be diagnosed immediately.

The best field practice to follow under such circumstances is to put an antibiotic in the water when a lowered feed consumption is first noticed and continue this practice for 6 to 7 days. At the end of this time it is wise to use a high level of antibiotics in the feed (100 gm. per ton) for at least two additional weeks. It is particularly important to watch the toms in a mixed flock immediately after the hens are removed for market, and observe any decreases in feed consumption. Curative measures should be taken as soon as feed consumption decreases are observed.

PENDULOUS CROP: Pendulous crop is a condition which often plagues the turkey producer about the beginning of the finishing period. The condition is characterized by the failure of the crop muscles to be able to retract and pull the crop into the normal condition when this organ is not filled with feed or water. The crop remains distended and the actual weight of the crop may make up as much as 30% of the total weight of the bird. The contents of the crop consist of fermented or soured feed and it has a particularly offensive odor. Histological studies have not revealed any particular tissue damage, although ulcerations may occur in the late stages.

Research carried out in the department of poultry science of the Texas Agricultural Experiment Station has shown that pendulous crop is probably accentuated by excessive fermentation in the crop. H. O. Wheeler found that the blood of birds affected with pendulous crop contained excessive amounts of alcohol and butyraldehyde. Isolation studies of organisms occurring in the crop of the pendulous crop birds revealed excessive numbers of yeast cells which produce alcohol under the proper conditions for fermentation.

There is no known method for preventing or curing pendulous crop at the present time. Research on this condition is continuing at the Texas station.

VITAMIN LEVELS: Vitamins are required for the maintenance of healthy tissues in the body and for the metabolism of proteins, fats and carbohydrates. There are indications

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that higher levels of vitamins are required with high energy formulas than with formulas containing excesses of crude fiber. It is quite obvious to the turkey producer that a smaller amount of feed is required if the energy content of the formula is increased. This will lead to a lower level of food intake and thus a lower level of vitamin intake. It is true that the turkey producer is only interested in maintaining the birds until the turkey processor picks them up. However, birds in poor condition due to inadequate nutrient levels in the formula may often succumb to low level infections near the end of the finishing period and require as much as four weeks' additional time to finish out, thus costing the producer valuable time and feed and perhaps change a profit to a loss for the season.

The following vitamins should be added to a turkey finisher formula as indicated on a per ton basis: riboflavin, 4 gm.; calcium pantothenate, 10 gm.; niacin, 40 gm.; choline chloride, 800 gm.; vitamin B_{12}, 6 gm.; vitamin A, 6,000,000 I.U.; vitamin D_3, 2,000,000 I.C.U.; vitamin E, 5,000 I.U., and menadione sodium bisulfite, 2 gm., or menadione, 5 gm.

It is particularly important to add vitamins to a concentrate in amounts which will allow the final intake on a per ton basis as indicated above. For example, if the concentrate is to be mixed with grain, vitamin levels should be increased in proportion to the amount of grain that is to be used in the final feed.

ANTIBIOTICS: It was pointed out above that there are five accepted antibiotics for use in turkey feeds: Aureomycin, bacitracin, Terramycin, penicillin and streptomycin. The writer recommends the use of 25 gm. of an antibiotic or combination of antibiotics in turkey finisher feeds. It is generally accepted that the antibiotics do not under certain conditions increase the growth rate nor improve the feed conversion of turkeys or chickens when added to the formula. It is quite possible that the environment on the premises has become somewhat sterilized due to the continued usage of antibiotics in feeds. This does not mean that the antibiotics should be eliminated from the feeds. Antibiotics are included in the feeds at the present time for the purpose of preventing subclinical infections or disease level and must be continued if the present growth rate and favorable feed conversions are to be obtained. Combinations of antibiotics are often more desirable than usage of a single one. It is also possible to make up combinations of antibiotics which may be more economical.

ARSONIC ACIDS: It is recommended by the writer that arsonic acids be continued during the marketing period again for the purpose of combating subclinical infections and maintaining a healthy flock. The arsonic acids which have been accepted for use in turkey feeds are 3-nitro-4-hydroxyphenylarsonic acid at at level of 45 gm. per ton or arsanilic acid at the level of 90 gm. per ton. Again, it should be pointed out that antibiotic and arsonic acid levels must be increased in concentrates so that the recommended level will be apparent in the finished feed.

SUMMARY: In summary it might be stated that the feed manufacturer and the turkey producer must provide turkeys with a feed which contains the highest level of productive energy it is economical to provide. This means that high fiber feeds such as oats and barley can be used only when the price is approximately 70% that of corn or lower. The feed conversions of turkeys during the finishing period will be directly in proportion to the energy content of the formula which the birds consume, whether it be a complete feed or concentrate and grain. Latest results indicate quite clearly that it is best to use a complete feed for finishing turkeys. The complete feed may be purchased or a concentrate purchased and mixed with grain on the farm.

Experimental data have shown that the turkey does not have the inherent ability to balance the proper intake of grain and concentrate for maximum efficiency results and profit.

It is believed that it would be wise for the feed manufacturer to consider a somewhat higher level of protein for turkey toms for the period from 16 to 20 weeks than has heretofore been indicated. A level of 18% protein is indicated above. Then the protein content of the finisher can be reduced to 16% at 21 weeks. Numerous cases of white feathers have been reported from the field, particularly in turkey toms. This is a clear-cut indication of a lysine deficiency which is probably traceable to too low a level of protein in the formula during the latter part of the growing period. It has been found to be traceable to an excess of grain being fed with concentrate. Grains are low in lysine and this could account for the white feathers.

Fat can be added to a turkey finisher formula to increase the energy content but only if the fat can be added economically. Certainly no more than 2½% added fat can be used in a turkey finisher complete feed formula at the present price of fat. Levels of fat as high as 10% have been used to an advantage during the final 2-4 weeks of the turkey finisher period when it was desired to speed up the finishing process.

Vitamin levels must be maintained as were discussed above. It is necessary to use antibiotics, sources of unknown growth factors and arsonic acids in the turkey finisher formula for best results with regard to obtaining the maximum weight in the shortest period of time and with a satisfactory feed conversion.

Mineral levels were discussed along with the cures and prevention of leg weakness. Indications point to the fact that leg weakness can be controlled if the proper mineral levels are maintained. Leg weakness must not be confused with synovitis. Indications are to the effect that zinc sulfate should be used at a level of about ½ lb. per ton to supply zinc for the prevention of leg weakness. It is also known that levels of the various vitamins are concerned with the leg weakness and will be taken care of with the vitamin levels indicated in this presentation.

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THE C. O. BARTLETT & SNOW CO.
6243 HARVARD AVE. • CLEVELAND 5, OHIO

INTEGRATED

(Continued from page 24)

"otherwise directed by authoritative decisions of the courts."

I would like to pose this question —who is the farmer contemplated by the act, in a grow-out contract under our modern integrated poultry projects? I cannot give you an exact answer to such a broad question which would be applicable in all conceivable cases.

At the present time, there is no absolute answer. However, there are some considerations which bear on the way you and your local counsel will resolve the matter under the facts pertaining to your own specific cases and which will doubtless weigh heavily in the consideration to be given the question by the wage and hour division and perhaps ultimately by the courts.

As the hatcheryman has traversed the path leading to large-scale involvement in modern grow-out arrangements, he has lost, in whole or in part, a number of the exemptions which he formerly enjoyed under the Wage-Hour Act. We have seen, albeit briefly, what can happen to the retail sales exemption, the retail establishment exemptions and the area of production exemption. The application of the agricultural exemption, too, is questioned by many.

Yet, I submit that the situation which caused the court and the administrator trouble in the Miller Hatcheries case has now swung full circle, and a hatcheryman operating a grow-out program can be said to be even more a "farmer" than before. The problem with which the court had to wrestle in the Miller Hatcheries case was that, whereas historically a "farmer" hatched his own chicks and raised them to broiler size on his own farm, the commercial hatchery only did a small part of this work; that is to say, hatching the chicks. What was more, it did it away from the usual type of farm—often right in a city.

Effect of Mechanization

However, under modern grow-out contracts, we find the hatcheryman himself assuming all the responsibilities of the historic role of the farmer and he undertakes to handle all the important elements involved not merely in hatching the chicks, but in hatching them and raising them. More sophisticated business methods and some degree of mechanization should have no effect on the application of the agricultural exemption, since the Supreme Court has said that the exemption covers large operators as well as small ones and includes "extraordinary methods" as well as the more conventional ones.

Furthermore, the bifurcation between hatching and raising has now become an unreal distinction and the raising of grow-out broilers is really one continuous enterprise operated by the hatcheryman. Thus, I say again, that we have come full circle and the hatcheryman now appears to be the real "farmer." His farming business is the hatching, raising and selling of broilers. He owns the chicks, he owns the feed, he owns the medicines; he controls by contract the raising of the chicks in the greatest detail, including land management practices, and he contracts for the sale of the broilers and bears the entire financial burden of any loss resulting thereby.

He realizes any gain over the flat fee or stipulated share per bird which he pays to the man whose land and labor he uses. He certainly controls the land used in raising the broilers although he may or may not actually lease it.

Leasing Needs Study

If actual leasing is going to be made a prerequisite to his being con-

NEW STEEL POULTRY HOUSE—More than 6,000 visitors from 22 states and Canada attended an open house near Winnebago, Minn., for what is said to be one of the most modern, completely mechanized poultry houses built. The 48 by 112-ft. windowless, all-steel building, manufactured by Stran-Steel Corp., Detroit, houses 5,000 California White pullets bred for high production. Aimed at quality controlled egg production, the entire operation is scientific and automatic. The color coating is a double layer of vinyl-aluminum applied to the galvanized steel at the factory. A white coating is given to the roof. Roll-through type nests are stacked three high. Feeding is automatic, as is cleaning. Power operated ventilation units are located along the side of the building. Each unit contains an intake and exhaust fan and is controlled by a thermostat. Ceiling and walls are insulated with fibreglass, and the interior of the building has a vapor barrier.

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NICE CARCASS—Larry McKee, 4-H Club member from Varna, Ill., had several reasons for smiling when this shot was taken. His entry won the International Livestock Exposition Carcass Contest, and sold for $10 lb. The 965 lb. Angus steer dressed out at 639 lb., bringing a price of $6,390. The steer was prepared for show on Cattle Primer, a product of Swift & Co., Chicago, which accounts for model Lois Conway (right), a model representing Swift's, being in the picture. Garofalo's Finer Foods, Chicago Heights, represented in the picture by model Holly Ray (left), purchased the carcass. The steer was fed twice a day on shelled corn, hay and the Cattle Primer supplement.

sidered a "farmer" (however unnecessary that formality would seem to be) perhaps that avenue should be explored. Look at the modern grow-out system in the light of the opinion in the Miller Hatcheries case which I quoted earlier. If, as the judge surmised, Congress felt the mere hatching of chicks to be "so intimately and directly connected with farming activities as to constitute one of the exempt processes of agriculture," would not raising the chicks from egg to finished broiler be even more directly connected with agriculture?

It would appear that, far from retreating from actuality and trying to describe as a "sale" that which is not in actual fact a sale (and hoping that the courts will be fooled into doing the same thing) so as to come under the various retail exemptions, the grow-out operator and his counsel might consider the possible advantages, under the agricultural exemption, of making even more definite in his contracts the position which he actually fills, that of the real "farmer" in the grow-out operation.

This would entail, among other things, abandonment of any "sales" language in the contract, regarding chicks or feed. I would caution you that this action should only be taken advisedly; in those areas where sales of the chicks or feed or both are really sales under the grow-out contracts there in vogue, it would doubtless be preferable to keep one foot, so to speak, on the retail exemptions and the other on the agricultural exemption so as to be in a position to assert both exemptions.

However, the steady march of grow-out economics has carried quite a number of grow-out operators beyond the point where they can realistically claim the retail exemptions.

Attention should also be given to the fact that the Fifth Circuit Court of Appeals has held that for the purposes of the Federal Income Tax law, a hatchery engaged in activities, many of which bordered on a modern grow-out program, was a farmer. The case was U.S. vs. Chemell, 234 F. 2d 944, and the executive secretary of the American Poultry & Hatchery Federation, Don Turnbull, was one of the expert witnesses for the employer-hatchery. Although not controlling on wage-hour questions, the case will certainly merit consideration. The Miller Hatcheries case, by the way, was referred to by the court in the Chemell case as the "case nearest in point."

Finally, let me say that out of all these rapid changes in grow-out operations, caught up in the general trend in American agricultural economics towards production under large-scale contracts, there has emerged the concept of the "contract poultry farmer"—and I submit that he is a very real farmer, operating by means of grow-out contracts which find their place in modern integrated poultry projects. The changes caused by the evolution of this new type of farmer in the poultry industry, necessitate, as you have seen, a reappraisal of the application to his employees of the wage-hour law; a law designed to be remedial in its application, but also designed for equally important reasons of public policy to grant a broad exemption for those involved in agriculture.

GIVE HIM ADVICE
HE'LL APPRECIATE
Remind him to order
Morton T-M Salt. See page 59.

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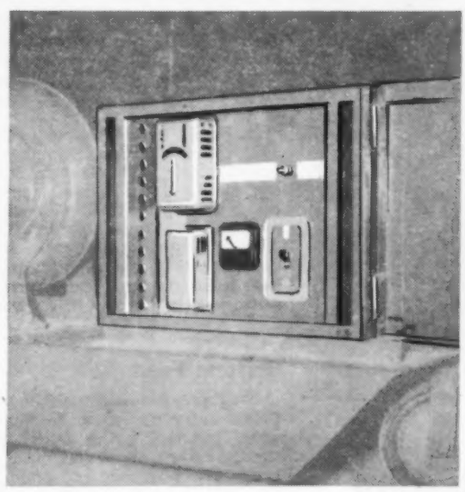

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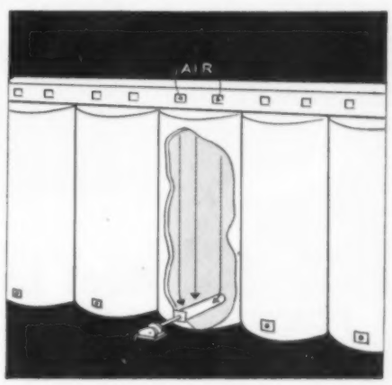

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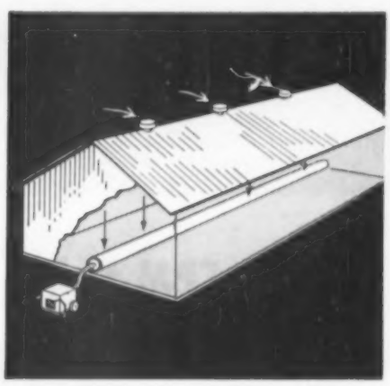

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CRD Threatens Broilers

Chronic respiratory disease (CRD) seems to be heading the list of troublesome broiler problems this time of year, according to poultry specialists. And federal inspection of poultry products makes it even more important to do everything possible to control CRD. Processors say this disease can be a cause for high condemnation of broilers at plants.

Prevention is the first line of defense against CRD. Poultrymen should practice good management seven days a week, including adequate heat and ventilation with good feed, water, and litter sanitation. A complete clean-up and disinfection program after each brood is recommended.

Also, a sound vaccination program for Newcastle and infectious bronchitis is important because these may develop into CRD. Control of parasites should be given close attention, too.

A proved coccidostat in the broiler ration will help control coccidiosis. Most important, say specialists, is an early laboratory diagnosis in determining the factors associated with chronic respiratory diseases. Producers should then use drugs as recommended by the laboratory pathologist.

◆

"Tired Blood" in Pigs

Iron anemia, or "tired blood," can set a little pig back 10 lb. at weaning time, but an injection of iron dextran at 7 or 14 days can head off this problem.

Anemia chokes off hog profits by virtually suffocating the little pigs. An iron shortage in blood means that it can't carry enough oxygen to vital organs, veterinary scientists report. Today's assembly-line production system on dry lot takes away the natural iron supply pigs once found in soil.

Producers should be sure to disinfect the injected area, to prevent infection. Oversize needles must not be used, and if the pig is properly injected, deep in the muscle, there should be no difficulty with drainback and irritation.

◆

Water Temperatures

Between 40 and 45 degrees is the best water temperature range for automatic livestock waterers. Electricity or fuel are wasted if higher temperatures are maintained, and producers run the risk of freeze-up if it drops below 40.

Dairy specialists have discovered that milk cows will take an average of 10 drinks a day if they have free access to it. Cows drank an average of 12-15 gal. a day when water was at the temperatures given above and waterers were located in a protected place. High producers drank as much as 40 gal. a day.

Most thermostats on waterers have adjustment screws which turn counter-clockwise to lower temperature and clockwise for warmer temperatures. And adjustments should be made gradually over a period of time. A temperature check should definitely not be made just after farm animals have been drinking, because a reading warmer than normal will show up.

◆

Uniform Feed

Poultrymen are finding it more efficient to use a complete feeding program for the laying flock rather than a combination of mash and grain, or concentrate and grain, says Dr. Paul E. Sanford, a Kansas State College poultry specialist.

One of the chief advantages, he says, is that a flock owner can produce a more uniform quality egg. With the complete feeding program, every bit of feed consumed by the hen is uniform as to nutrient content as well as amount of xanthophyll pigment. This makes it possible to produce the eggs with uniform egg yolk color.

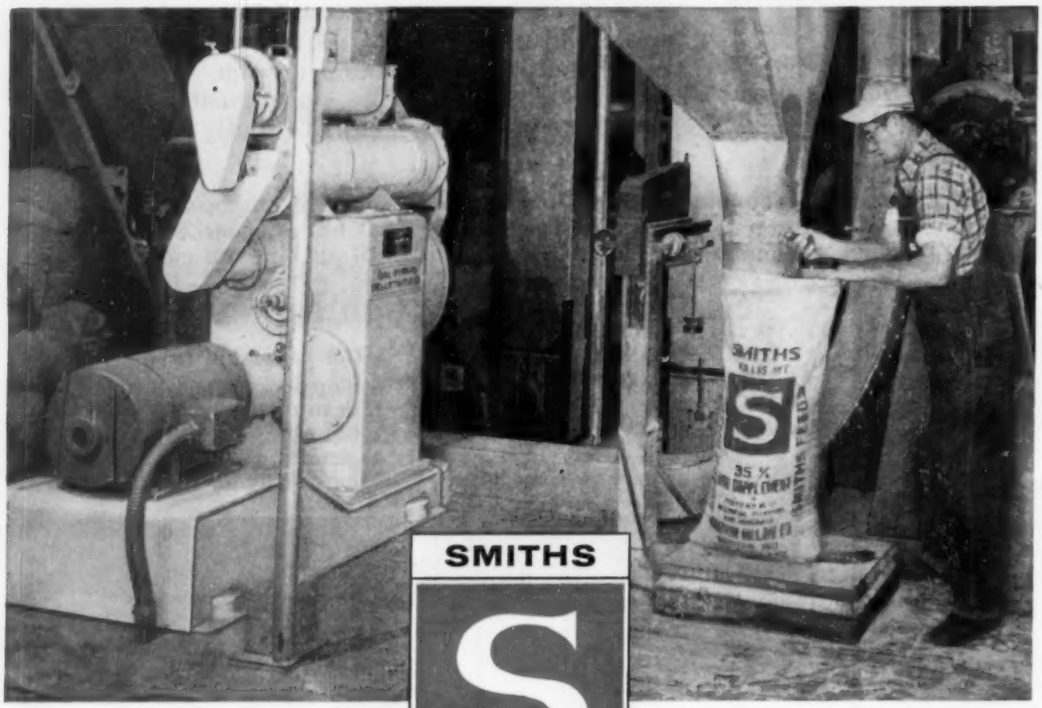
◆

Protein Advantages

Controlled nutrition studies indicate that there are at least four advantages when protein is added to the poorly-balanced beef ration, scientists report. First, the animals eat more feed; second, they gain more weight per day; third, the amount of feed needed for each pound of gain is significantly reduced, and fourth, higher prices are usually received for the finished cattle.

GENERAL MILLS DIVIDEND

MINNEAPOLIS—The board of directors of General Mills, Inc., recently declared a dividend of 75¢ per share on General Mills, Inc., common stock payable Feb. 1, 1959, to stockholders of record Jan. 9, 1959. This is the 122nd consecutive quarterly dividend on General Mills common stock.



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Morton T-M Salt. See page 59.

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No. 7319—Stacking Belt

A high speed stacking belt, designed for use with standard Power-Curve box car and truck loaders has been announced by Power-Curve Conveyor Co. The company claims the unit can make possible one-man, push-button car loading of bags. The operator guides the bags as the conveyor stacks to full height anywhere in the car. The unit handles 30 bags per minute. The stacker and conveyor are push button controlled from the same station, advance or retreat under shuttle power without interruption of flow, the company says. The loader carries bags through box car door and into the end of the car or around pillars, corners, through aisles and doorways. For details, check No. 7319 and mail.

No. 7320—Bulk Truck Catalog

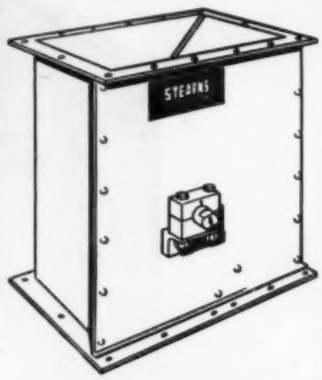
The availability of an illustrated eight-page catalog on pneumatic bulk trucks has been announced by Sprout, Waldron & Co., Inc. Bulletin 203 presents a detailed analysis of the bulk feed advantages and contains photos, design details and capacity ranges for the Sprout-Waldron Feed Pipers line. A special section of the booklet is concerned with methods for converting existing van or stake trucks or trailers to bulk pneumatic service. Various methods are illustrated. For copies, check No. 7320 and mail to this publication.

No. 7322—Poultry Window Fabric

Chicopee Manufacturing Corp. announces "Lumite" saran poultry house fabric. The material, the company says, can be used in broiler, brooder and layer house windows, for swine and other animal shelter curtains and as drop curtains on all pole-type or open buildings for machinery and supply protection. The material does not rot, rust or mildew, gives good light transmission, stays flexible and pliable, is fire-resistant and is easy to clean the company says. For more complete information, check No. 7322 on the coupon and mail to this publication.

No. 7327—Tramp Iron Separators

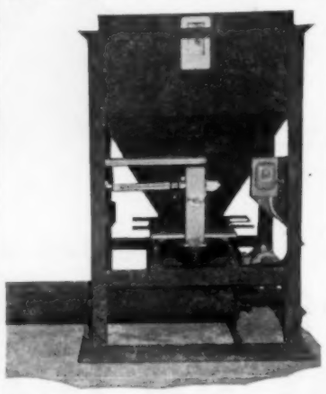
Stearns Magnetic Products announces a new line of tramp iron separators featuring the use of Indox ceramic permanent magnets. The ceramic material is barium ferrite, pressed into a compact under great pressure and magnetized to produce a flux pattern for maximum effective tramp iron separation. Included in the line are the Indox V Magnetic Pulley for installation at the head



of a belt conveyor system; the Indox Grate Magnet, for installation in hopper or floor opening, chute or duct; the Indox V Magnetic Drum, for installation in enclosed chutes and spouts; and the Indox V Plate Magnet, for installation in chutes, ducts, spouts or on conveyors. Check No. 7327 and mail for details.

No. 7318—Weigh Station

A new weigh station designed especially for smaller mills has been introduced by the Ross Manufacturing Co. Intended for fast and easy weighing and moving of bulk ingredients to



the mixer or hammermill, the station is equipped with automatic devices to eliminate overweights, waste, spillage and the necessity of watching the scale, the company says. To find out more about this new 1,000-lb. weigh station, check No. 7318 on the coupon and mail it to this publication.

No. 7321—Asbestos-Cement Sheets

Structural sheets of asbestos-cement, made by Keasbey & Mattison Co., are being offered for poultry building construction. The sheets can be easily scrubbed and will not rot. The material is vermin-proof and resists rats, raccoons, mice, weasels and other marauding animals. Made from asbestos-cement, the building material is fireproof. For details check No. 7321 on the coupon and mail.

No. 7326—Dust Collector Book

A 24-page, illustrated handbook, entitled "Industry Relies on Dustube Collectors for Efficient Dust and Fume Control" is being offered by Wheelabrator Corp. The book describes a wide range of industrial dust and fume producing processes. The operating principles of Dustube Collectors are illustrated and explained. There are also 14 separate illustrated sections showing how the collectors are used. For copies of this booklet, check No. 7326 and mail.

No. 7323—Horizontal Mixer Bulletin

The complete line of Young Machinery Co., Inc., horizontal mixers is discussed in Bulletin F-1058-18 recently published by the company. The 12-page bulletin gives dimensions for mixers up to 500 cu. ft. working capacity and illustrates various arrangements of ends, supports, agitators, shafts, glands, covers, inlets and discharges, gates and drives. For copies of this bulletin, check No. 7323 on the coupon and mail.

No. 7325—Hog Feeder

Honeggers' & Co., Inc., announces an all-metal, lifetime-guaranteed "Big Bin" hog feeder. The feeder is manufactured with a cast iron bottom that is guaranteed for the lifetime of the purchaser. The bins come in 75 and 45-bu. sizes, are made of 20-guage steel and are corrugated for extra strength, the company says. A suspended, six-rod agitator prevents bridging. The steep angle design of the feeder gives ample head room for

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- ☐ No. 7321—Asbestos-Cement Sheets
- ☐ No. 7322—Poultry Windrow Fabric
- ☐ No. 7323—Horizontal-Mixer Bulletin
- ☐ No. 7324—Bagger Bulletin
- ☐ No. 7325—Hog Feeder
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even the largest sows, the company says. For more complete details, check No. 7325 on the coupon and mail to this publication.

No. 7324—Bagger Bulletin

A four-page bulletin (No. 1510) illustrating the Bemis Faster-Weigh Bagger for pelleted, granular and cubed-type products, has been released by Bemis Bro. Bag Co. The bulletin contains engineering data and details on operational performance of the bagger which weighs and fills up to 22 50-lb. bags per minute. For copies, check No. 7324 on the coupon and mail to this publication.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7247—Chemical company brochure, U.S. Industrial Division, National Distillers and Chemical Corp.

MR. AMSCO SAYS:

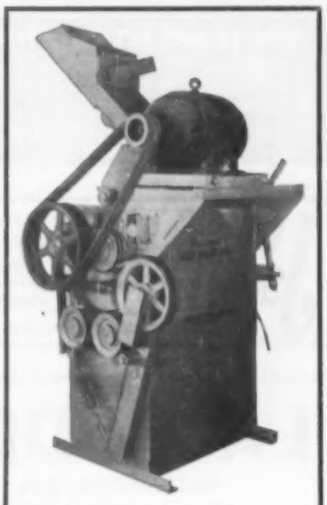
"For year around availability of premium quality meat & bone, fish meal and A and D oils, you can depend on Amsco."

American Mill Service Co.
116 PORTLAND AVENUE MINNEAPOLIS, MINN.

No. 7248 — Animal health folder, Merck & Co., Inc.
No. 7249 — Poultry health folder, Merck & Co., Inc.
No. 7250—Automatic egg counter, Hawkes Cage System.
No. 7251—Poultry de-winger, Dakota Ranches.
No. 7252—Hammermill literature, Prater Pulverizer Co.
No. 7253—Folder on "Penstrep" line, Merck & Co.
No. 7254—Texturing material, Philip R. Park, Inc.
No. 7255—Ventilation system, Rolfes Grain Aeration Companies.
No. 7256—Story on feed mills, Sprout, Waldron & Co., Inc.
No. 7257—Mailing piece on pulverizers, Prater Pulverizer Co.
No. 7258—Weigher, filler bulletin, Richardson Scale Co.
No. 7259—Stone detector, Seedburo Equipment Co.
No. 7260—Cattle health product, Merck & Co., Inc.
No. 7261—Equipment brochure, FM Engineering Co., Inc.
No. 7262—Custom feed milling booklet, Prater Pulverizer Co.
No. 7263—Hammer mill, Sprout, Waldron & Co.
No. 7264—Poultry feeder, Oakes Manufacturing Co.
No. 7265—Animal health product, Pratt Laboratories, Inc.
No. 7266 — Magnetic separator housing, Eriez Manufacturing Co.
No. 7267 — Pneumatic conveying bulletin, The Day Co.
No. 7268—Portable aeration unit, Gerber Roto-Flo Co.
No. 7269—Pneumatic handling system, Sprout, Waldron & Co., Inc.
No. 7270 — Automatic typewriter readout, Richardson Scale Co.
No. 7271 — Gross bagging scale, Richardson Scale Co.
No. 7272—Impact mill, "Entoleter" Division, Safety Industries, Inc.
No. 7273—Revolving valve, Gerber Sheet Metal, Inc.
No. 7274 — Dryer control panel, Campbell Dryer Co.
No. 7275—Booklet on fats in feeds, Monsanto Chemical Co.
No. 7276—Automatic feed weigher, Seedburo Equipment Co.
No. 7277—Poultry feed brochure, Mechanical Poultry Feeder Assn.
No. 7278—Report on bulk handling, Towmotor Corp.
No. 7279 — Metal-free slat floor, Munro Egg Automation Co.
No. 7280 — Bulk storage-mixing tank, Columbian Steel Tank Co.
No. 7281—Bin level indicator, Roto-Indicator.
No. 7282—Antibiotic technical bulletin, Merck & Co., Inc.
No. 7283 — Rotary batch blender, Munson Mill Machinery Co.
No. 7284—Hormone implants, E. R. Squibb & Sons.
No. 7285 — Pneumatic unloading system, Sprout, Waldron & Co., Inc.
No. 7286 — Bag stacker bulletin, Power Curve Conveyor Co.
No. 7287—Filling machine feeder, Frazier & Son.
No. 7288 — Conveying equipment, Yancey Sales, Inc.
No. 7290 — Portable air vibrator, Cleveland Vibrator Co.
No. 7291—Animal health booklet, Abbott Laboratories.
No. 7292 — Punched card reader, Richardson Scale Co.
No. 7293—Tramrail booklet, Cleveland Tramrail Division, Cleveland Crane & Engineering Co.
No. 7294 — Rotary knife cutter, Munson Mill Machinery Co.
No. 7295 — Equipment brochures, Oakes Manufacturing Co.
No. 7296 — 20-ton storage bin, Leach Manufacturing Co.
No. 7297—Whey product, Western Condensing Co.
No. 7298 — Alfalfa bale shredder, Lakeland Engineering Equipment Co.
No. 7299—Animal health product, Pratt Laboratories, Inc.
No. 7301—Folder on batch mixers, Munson Mill Machinery Co.
No. 7302 — Bulk handling system, AAA Equipment Service Co.
No. 7303—Cobalt bullets, Nicholas of America, Ltd.
No. 7304 — Round hog feeder, Oakes Manufacturing Co.
No. 7305—Moisture determination balance, Seedburo Equipment Co.
No. 7306 — Booklet on turkeys, Whitmoyer Laboratories, Inc.
No. 7307—Aluminum hoe-scraper, Aluminum Ladder Co.
No. 7308 — Farrowing, growing building, Permco Manufacturing Co.
No. 7309—Float valve, Miller Manufacturing Co.
No. 7310—Bulletin on inventory counter, Richardson Scale Co.
No. 7311—Bulk handling shovel, Munson Mill Machinery Co.
No. 7312—Drum cover data sheet, Richardson Scale Co.
No. 7313 — Booklet on stilbestrol feeding, Eli Lilly & Co.
No. 7314—Aluminum bulk trailer, Butler Manufacturing Co.
No. 7315—Bulk feed body, Dorsey Trailers.
No. 7316—Flock feeder, National Ideal Co.
No. 7317—Bulletin on oat crimpers, Sprout, Waldron & Co., Inc.

FACILITIES MOVED

NEW YORK—Market research and product development operations of International Paper Co.'s Bagpak division have been shifted from Camden, Ark., to the company's New York headquarters, it was announced by A. A. Scholl, division manager. W. L. Shoemaker, with International Paper since 1951, has been named manager of these activities. In his new post in the New York office Mr. Shoemaker will supervise Bagpak's sales development engineers stationed at various locations across the country. The division's market research and product development work will be done in close liaison with the company's over-all market research and new products department.



You Owe It to Yourself

LOOK AT IT FROM EVERY ANGLE

THE ANGLE OF CONSTRUCTION
Heavy steel frame—white iron rolls to process more than 200,000 bushels of grain before recorrugating—finger tip hopper control—quick change, positive adjustment of rolls—multiple v-belt drives and spring controlled belt tightener.

THE ANGLE OF PRODUCTION
Four sizes give capacities from 75 to 300 bushels of oats per hour or 200 to 1,000 bushels of corn per hour.

THE ANGLE OF MODELS
Four models with four sizes in each model answer every need. The single duty, the shortened single, the double duty and the all-purpose which will do two different jobs at once or double the capacity of any one job. Then there is the 9-12x30 model that will crimp or crack dry or steamed grains.

THE ANGLE OF FEED
Rolled grain is coming to be recognized as the easiest to digest, most palatable grain for all animals. It also contains less dust and flour, thus making it a healthy feed.

THE ANGLE OF COST
Low original investment, low operating cost, long life and very little maintenance.

A guaranteed machine that is your best dollar value from any angle.

Write for complete information.

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CEDAR FALLS, IOWA
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Water soluble
Rapidly absorbed
Fast, effective protection against hemorrhagic disease
Economical
Completely stable potency

*U.S. Patents 2,331,808 & 2,367,302

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MALT SPROUTS
BREWERS GRAINS
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BEET PULP
AND 44 OTHER FEEDS

Feed Man Transferred To Minneapolis Office

MINNEAPOLIS — Alan D. Beggs, general supervisor of feed and merchandise operations for Occident Elevator division of F. H. Peavey & Co., Minneapolis, has been transferred to the Minneapolis office from Billings, Mont.

The Grainville Bugle, publication of F. H. Peavey & Co. and affiliated firms, said Mr. Beggs will continue in his present capacity of general supervisor and has been assigned additional duties.

Mr. Beggs joined the division in 1935 at Duluth, Minn., and that same year was transferred to the Valley City, N.D., elevator as bookkeeper. In 1938 he was transferred to the Minneapolis office as manager of the feed department.

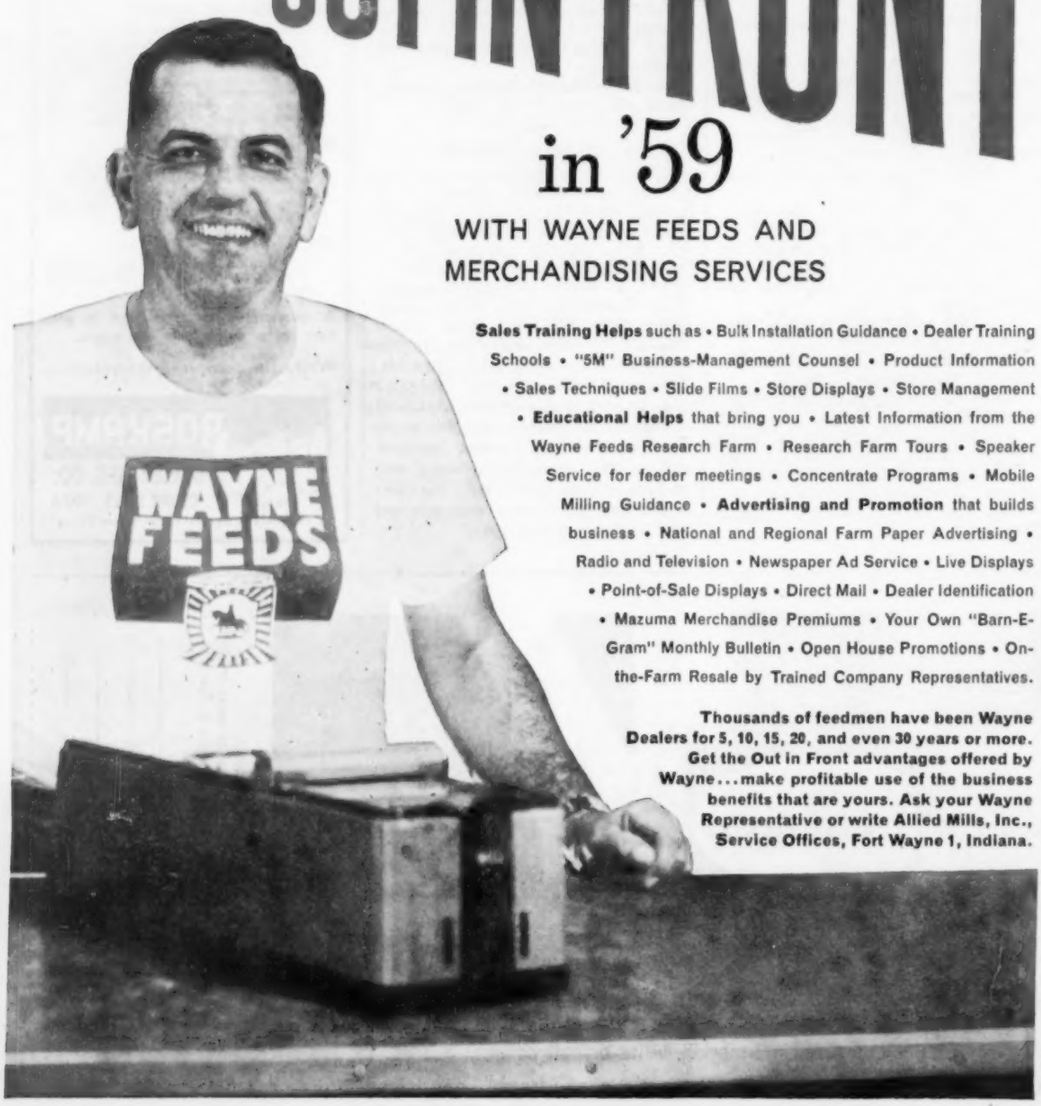
Following service in World War II, Mr. Beggs returned to his former post until 1948, when he was transferred to Billings.

George Brenneman, Wakarusa, Ind., says:

"I've found out that you can *really* be Out in Front in the feed business with a top quality feed, pre-sold to your customers and backed by a company with a proven record of fair dealing. Just as important are the merchandising services that help build business right in your area. The way I figure it, there are at least two dozen good reasons why I'll

stay OUT IN FRONT in '59

WITH WAYNE FEEDS AND MERCHANDISING SERVICES



Sales Training Helps such as • Bulk Installation Guidance • Dealer Training Schools • "5M" Business-Management Counsel • Product Information • Sales Techniques • Slide Films • Store Displays • Store Management • **Educational Helps** that bring you • Latest Information from the Wayne Feeds Research Farm • Research Farm Tours • Speaker Service for feeder meetings • Concentrate Programs • Mobile Milling Guidance • **Advertising and Promotion** that builds business • National and Regional Farm Paper Advertising • Radio and Television • Newspaper Ad Service • Live Displays • Point-of-Sale Displays • Direct Mail • Dealer Identification • Mazuma Merchandise Premiums • Your Own "Barn-E-Gram" Monthly Bulletin • Open House Promotions • On-the-Farm Resale by Trained Company Representatives.

Thousands of feedmen have been Wayne Dealers for 5, 10, 15, 20, and even 30 years or more. Get the Out in Front advantages offered by Wayne . . . make profitable use of the business benefits that are yours. Ask your Wayne Representative or write Allied Mills, Inc., Service Offices, Fort Wayne 1, Indiana.

The schools teach about 50% of their pupils to tell time. The others grow up to be women.

◆ ◆ ◆

A guy walked into a bar wearing a black silk suit, black patent leather shoes, a black turtleneck sweater, pearl earrings, and a 9-strand pearl necklace.

He had himself a pink lady, drank it and departed. Another customer said to the bartender: "Did you get a load of him?"

"What about him?" asked the bartender.

"My gosh," the guy said, "a black silk suit, black patent leather shoes, a black turtleneck sweater, pearl earrings and a 9-strand pearl necklace!"

"So?" said the bartender. "And what else could you wear with basic black?"

◆ ◆ ◆

Anybody who thinks he doesn't need a psychiatrist these days should have his head examined.

◆ ◆ ◆

Have you heard about the rich Texan (don't stop us) who arrived at the Fontainebleau Hotel in Miami Beach followed by several bell-boys carrying skis, toboggans, sleds, etc. Following them came several brace of Alaskan huskies.

"Why, sir!" exclaimed the desk clerg, aghast. "This is Florida. There's no snow here!"

"I know, I know," boomed the Texan. "It's coming right along with the rest of my luggage."

◆ ◆ ◆

Today's housewife enjoys cooking —especially when it's done by the chef at one of the better restaurants.

◆ ◆ ◆

Investigations prove men are better at solving problems—but only after the women create them.

◆ ◆ ◆

Five-year-old Eddie had always wanted a sister. Recently his eldest brother brought home a wife. "Now you have a sister, Eddie," his mother said. "I want a real sister," he replied, "not an outlaw."

BEFORE

I was a 20 lb. weakling until I started on feeds with SUCRO-FLAVOR TRADEMARK

AFTER

FLAVOR CORPORATION OF AMERICA
3037 North Clark Street • Chicago 14, Illinois

No Advantage Reported In Addition of Fat to Oat Pellets for Swine

FARGO, N.D.—Additions of fat or fat and molasses to pelleted oat rations for growing-fattening swine did not appreciably increase gains or feed efficiency in feeding trials completed recently at North Dakota State Agricultural College here.

The experiment, reported in a recent issue of North Dakota Farm Research, publication of the Agricultural Experiment Station at the college, followed an earlier experiment in which additions of 3% lard increased gains and feed efficiency where fattening hogs were fed meal rations containing alfalfa. In this earlier experiment, when the source of fat was changed from lard to tallow, the pigs went off feed.

In the most recent experiment, 48 crossbred pigs weighing about 38 lb. were allotted into three groups. They were in drylot, were fed from self feeders and had water available at all times. Weights were taken every two weeks, and the experiment closed when the pigs weighed 200 lb.

A basal ration of oats, supplemented with fishmeal, meat scraps, minerals and vitamins, was compared with a ration in which 4% lard and enough soybean oil meal to equalize protein were substituted for oats.

In the same manner, another ration, in which 4% lard, 4% cane molasses were added along with enough soybean meal to equalize protein, was substituted for oats. BHT was added to protect the lard from becoming rancid. The lard had been kept under refrigeration, but it was not fit for human consumption because it had an "off" odor.

Oats was selected as the grain for comparison because of its lower energy and higher fiber content. Thus, said the researchers, the higher energy nutrients should give a greater response than barley or corn. Reporting on the experiment were Dr. W. E. Dinusson, Duane O. Erickson, C. N. Haugse and D. W. Bolin.

All rations were pulverized and pelleted, but the additions of fat resulted in a soft pellet that had a tendency to revert back to the meal form.

The researchers said the pigs responded equally well to treatment. The feed efficiency was good for a pelleted oat ration, showing 361 lb. per cwt. for the basal ration, 374 lb. for the 4% lard and 372 for the lard and molasses. None of the lots gained significantly better than the pigs on the basal oat ration. (1.60 lb. daily for the basal ration, 1.61 for the 4% lard and 1.65 for the lard and molasses.)

Unfortunately, the addition of 4% fat to the ration containing about 2% naturally-occurring fat resulted in a soft pellet with a tendency to crumble. Consequently, the pigs receiving the fat rations wasted some of the feed by rooting it out of the feeders, the researchers said. The waste seemed to vary, but it was never as much as is usually seen with meal rations, they said. The waste was considered a reason for the few extra pounds of feed needed to make 100 lb. of gain.

A. Mason DuPre Appointed to ARS

WASHINGTON—A. Mason DuPré, Jr., has been appointed assistant to the administrator of the Agricultural Research Service. Mr. DuPré previously served as assistant to the director and assistant director of the Southern Utilization Research and Development Division, New Orleans.

He replaces Dr. Walter M. Scott, who is now directing the department's Public Law 480 research program in Europe and the Near East.

Protest Proposed Rate on Screenings

VANCOUVER—One of the the important by-products of the grain business for export here is refuse screenings. However, the Canadian railways have proposed new rail rates on screenings which would put this port at a serious disadvantage. Representatives of the local grain trade recently appeared before the Board of Transport Commissioners at a hearing here to protest against the rate increase.

At present the rate on screenings is the same as on export grain, which is only about one third of the domestic. These screenings are taken out here when the grain is cleaned for export. Until recently the refuse material was burned or dumped but livestock interests here have found a method of processing screenings for cattle feed.

The railways applied for a reclassification of the rate on screenings to the domestic rate because the material is used here and therefore not entitled to the export rate, according to the railway claim. However, the railways have not asked for the higher rate on screenings taken out at lakehead ports. U.S. feed interests buy screenings at Fort William-Port Arthur.

In its case before the transport board, the Vancouver Merchants Exchange told the commissioners that the higher rate on screenings will alter the "whole basis of export rates" through this port. They explained the case of a farmer at Maple Creek, Sask., the present dividing line on east-west shipments, who can ship either way at the same rate. With the proposed increased charge the Maple Creek farmer could ship more cheaply to the lakehead, adding that it would also be an "insuperable task to determine what charge should be made on each individual car of grain." There are variations in the dockage of screenings from each car, the different points of origin and freight rate, the disposal of the screenings.

The exchange argued that if grain has to be processed here in any way it is still grain for export and for no other purpose and therefore the export rate should also apply to the refuse. The transport board is expected to render a decision shortly.

"If you think that looks screwy, you should visit that livestock farm of his."

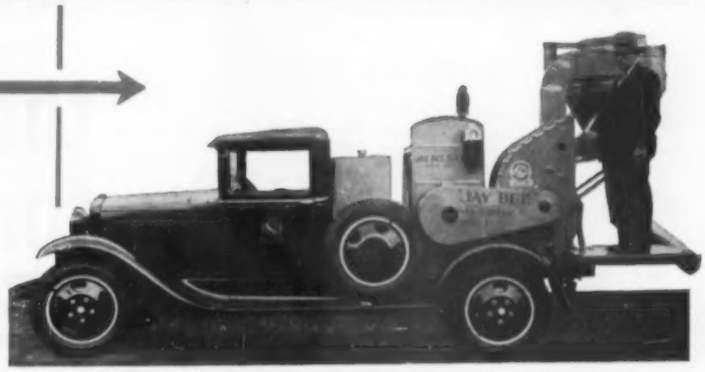
MOVES FEED STORE

SUSANVILLE, CAL.—Irvin Cox has moved his animal and poultry retail feed store from 935 Main St., Susanville, to a larger location on Johnstonville Road. The store is known as Cox's Feed Store.

The JAY BEE All-in-One® Feedmaker

NOW — and THEN

THE STANDARD OF COMPARISON FOR HIGH CAPACITY—LOW OPERATING COST—TROUBLE-FREE PERFORMANCE—LONG LIFE



Modern Jay Bee All-in-One Feedmaker operated by Wayne Feed Supply Co., Inc., Dillsburg, Pa. —one of hundreds making money for owners from coast to coast.

To find out what this complete custom mill on wheels can do for you, mail this coupon today!

J. E. SEDBERRY, INC. TYLER, TEXAS FRANKLIN, TENN.

One of the first mobile milling units ever used in the Valentine, Nebraska, area—a Jay Bee 15" Model 3UP, powered by a 75 H.P. Waukesha gasoline motor and mounted on a 1929 Ford truck.

Throughout the years, all over the country, owners of Jay Bee All-in-One Feedmakers have been saving money for their customers and increasing their own sales and profits by providing complete grinding, mixing, and molasses blending service—right in the farmer's barnyard.

Sedberry now offers complete feed mill design and installation service—every step from plan to production. The coupon will bring complete information.

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☐ Please tell me all about the Jay Bee All-in-One Feedmaker.

☐ Please tell me about your complete mill installation service.

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Company .....

Street or Box .....

City ..... Zone..... State.....

GIVE HIM ADVICE HE'LL APPRECIATE

Remind him to order Morton T-M Salt. See page 59.

Proposed Merger of 8 Egg Marketing Co-ops Described

TRENTON, N. J.—A proposed merger of eight New England egg marketing cooperatives into the organization of the Eastern States Farmers Exchange, West Springfield, Mass., is described in a recent issue of Neppco News, monthly publication of the Northeastern Poultry Producers Council, Trenton, N.J.

According to the report, the essence of the proposal is as follows:

"Eastern States, a 40-year-old giant in the cooperative purchasing field, is willing to take into the fold any or all of the eight co-ops that have expressed an interest in the consolidation. It will acquire ownership of the physical facilities of the cooperatives, take responsibility for liabilities and for the payment of member equities, and provide for the continuance of managers and other key personnel.

"It is planned that present plants and personnel are to remain unchanged at the start. Strong reasons for promoting the merger range from the resulting stronger bargaining position of such a merged unit to the economics of centralized administration, and the opportunities for greater service to membership in the form of attractive integration plans."

The eight interested cooperatives include five in Connecticut—the Connecticut Farmers Cooperative Assn.; Connecticut Poultry Producers, Inc.; Eastern Connecticut Poultry Producers, Inc.; Hamden Cooperative Poultry Auction, Inc., and the Willimantic Poultry Assn., Inc. Two of the eight are in Massachusetts — the Brockton Cooperative Poultry Producers, Inc., and the Springfield Cooperative Auction Market Assn., Inc. Also involved in the plan is the New Hampshire Egg Producers Cooperative.

Organization Study Launched

Neppco News pointed out that Eastern States has altered its bylaws so that it can assume marketing functions, and has laid $25,000 on the line to finance studies on the possible realignment of its "new family" on a more efficient, profitable basis. A survey is already well underway by the Arthur D. Little Co., Boston, an independent research organization.

The report said that one reason these individually prosperous farmer marketing groups are seeking the merger under Eastern States is that the pattern of New England egg marketing has been changing slowly, but surely. Although still prospering, nearly every one of the cooperatives involved has seen its egg volume whittled down.

Marketing Volume Decrease

"Last year the Connecticut Poultry Producers dropped 4,200 cases in volume from 1956. Egg marketing at Hamden was off nearly 18,000 cases, while the New Hampshire Egg Producers saw its volume clipped about 25%. At Willimantic, annual sales have slipped from 80,000 cases to about 65,000 cases," Neppco News pointed out.

As a means of explaining these decreases in volume the publication quoted John Randall, manager of the Springfield cooperative. A survey of his members, Mr. Randall said, revealed that the average age was about 60 years, and that at this point in life, few were willing to gamble a capital outlay for expansion. Not only is it difficult for youngsters to scrape up the $35,000-$40,000 necessary to get started on a commercial scale, but integrated and semi-integrated operations are proving so attractive to many that they are being lured away from the standard cooperative program.

"We must make a major effort to correct this situation," Mr. Randall said. "We'll be out of business in 10 years or less, unless we can change

Andrew M. Duncombe

PROMOTED—The promotion of Andrew M. Duncombe to the position of assistant to the director of public relations was announced recently by Central Soya Co., Inc., Ft. Wayne, Ind. A graduate of Ohio State University, where he majored in animal husbandry and technical journalism, Mr. Duncombe joined Central Soya in 1952. He became public relations editor in 1957.

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How would you feed a BEST OF BREED?
Florida Citrus Pulp
CITRUS PROCESSORS ASSOCIATION
P.O. BOX 1459 • WINTER HAVEN • FLORIDA • DEPT.
THE SUNSHINE FEED FOR CATTLE

Concentrated Advertising and Promotional Plans [that include advertisements such as this one, seen by 1,566,578 readers] pay off in sales results for you!

the BEST of FEED for their BEST of BREED

When you offer your customers a prestige product, pre-sold through a national advertising program, sales come easy for you! Your customers want the proven high carbohydrate concentrate feed, FLORIDA CITRUS PULP, because it has more to offer:

HIGH T. D. N. CONTENT — 74.9%
PROVEN MILK STIMULATING FACTORS
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Presents these *quality feed products for '59

SUPPLEMENTS
Poultry — Hogs

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12% Protein Supplement Block composed of condensed whey products, milk & fish by-products —Fully Fortified.

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Composed of M/F Special Supplement plus Ferro-Lac®.

BIG BABE LIQUA-FEED
M/F Supplement in liquid form for custom feed mixing operation.

WAT-O-WHEY BLOCKS

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MILK REPLACERS
Cattle—Mink—Hogs

BIG BABE STANDARD
10% Fat, 24% Protein

BIG BABE PREMIUM
5% Fat, 29% Protein

BIG BABE PRESTARTER
15% Fat, 28% Protein

CALF-RENA M-R
3% Fat Milk Replacer

BIG BAGE VEALER

BIG BABE SUPER VEALER

Plus: Many milk replacer concentrates for custom blending operations.

SPECIAL FORMULA
For Custom Blending

AUREO-VITA-MIN
Package Product Units

BIG BABE FORTIFIER
Used with Liqua Feed Milk Pump Installations

TAPS® For Poultry

TAPS® For Hogs
(®Registered FARMCO-MINN.)

AND COMING SOON a new line of dried milk blend products for custom mixers.

*A Quality product with extra added features quickly identifies a Big Babe Brand product. In only eight years of operation Associated Feed Products has taken its place with the quality manufacturers of Specialized Feed Products. Try the products listed above and watch for announcements of new fast-growth producing products, especially formulated for young animals, to be manufactured and marketed this year by Associated Feed Products, Inc.

Information on product distribution and shipping points available by writing or phoning.

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for vitamins
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H. E. HARDY & CO. 912 MIDLAND BANK BLDG., MINNEAPOLIS, MINN.

our cooperative structure to meet today's needs."

Abraham Levine, manager of the Connecticut Farmers Cooperative Assn. and a commercial poultry farmer, said he believes the proposed merger holds the promise of a secure future for the New England egg industry, a belief shared by other managers.

Howard Whelan, manager of the Brockton Auction, which moves about 150,000 cases of eggs a year, points out that egg buyers are constantly getting bigger, and that to supply these "giants of the consumer merchandising world," it takes a big cooperative.

Others see in the consolidation an opportunity to offer members some of the extra services that are now available through integration.

Brand-Name Product

Neppco News commented that should the consolidation become fact, central grading, payment on the basis of yield and brand identification are three of the major results expected to take shape. Every manager polled expressed the belief that the first was well on the way, with the last two to follow as an almost inevitable result.

William H. Prigmore, assistant general manager of Eastern States, is even more explicit. There is no question about the development of a branded product, he said. The development of a brand name egg would be high on the agenda at Eastern States, to be backed up with a comprehensive program of consumer advertising and promotion.

The Neppco report went on to say that other and perhaps more concrete benefits in the form of more efficient operation are sure to result. Central grading, for instance, could be performed for as little as 15¢ a case. This operation alone, one manager pointed out, could reduce farm

Dale Hochstetler

SALES APPOINTMENT — Dale Hochstetler of Wellman, Iowa, has been appointed to the sales staff of Kent Feeds, Muscatine, Iowa, announced William Schafenacker, sales manager. Mr. Hochstetler was a Kent dealer for many years and also has experience as a turkey grower. He will assist Chick Robison in one of Kent's southeastern Iowa territories.

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Minnesota Linseed

To the formulas you are now using, blend in a generous quantity of protein-rich Minnesota Linseed Meal. Serve it up to your feed customers as a quality mix, carefully balanced to step-up milk production and put a "finish" on feeder livestock. Or sell it straight, by the bag if you prefer.

Fortify profits with Minnesota Linseed Meal—*your best protein supplement for the least money!* It's convenient to handle in meal, pellet, or grit form. Free nutritional help without obligation.

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costs by $75 a week for large commercial farms. Central bookkeeping, transportation, and the eventual elimination of some existing plants could make even more sizeable economies that would be reflected in member egg checks.

Major Obstacle

The chief obstacle to the merger is the reluctance on the part of many members to give up their sovereignty. Up until now, members elected their own boards of directors, solved their own problems and directed their own managers. None of this would be possible under consolidation. Plants and equipment would move into the hands of Eastern States and present plant managers would be on Eastern's payroll.

"The resulting structure would be more complex, more impersonal and further away from home. The thought is a disquieting one for many," it was related in the report.

Eastern has attempted to soothe these fears of "bigness" with two major moves. One is the approved expansion of its board of directors so that officers of present co-ops may take an active part in administration. Since Eastern does not follow a pattern of commodity representation in electing directors, however, there is some uncertainty as to whether all new directors would be drawn from the egg co-op group.

Secondly, Eastern proposes the establishment of a standing egg marketing committee to work with the new division and the board. Each of the operating egg plants would presumably have advisory committees as well.

Joseph Farrelly, manager of the Eastern Connecticut Poultry Producers, stated, "Of course we have a strong attachment for our cooperative, but if producers will benefit by changes, we cannot mourn its passing, if that be necessary. We can't stand in the way of progress."

Although several of the cooperatives have voted "approval in principle," there still remains the task of securing agreement on the legal aspects of the changeover. After this point is passed, the physical details of collection, selling, plant development and other elements will be shaped, according to the Neppco report.

"Whether all of the eight will join forces is still undecided. But whatever the outcome, one thing is sure—sweeping changes are on the way for egg marketing in New England," the report concluded.

Feed Yard, Packing House to Be Erected

BAKER, ORE.—An Idaho stockman stated recently that a $350,000 livestock feeder yard and packing house will be built here soon.

Floyd Uria, Gooding, Idaho, said the plant will be built by him and William Schaan, owner of the Baker Livestock Exchange. Mr. Uria made the disclosure in a speech to the Baker Chamber of Commerce's board of directors. There was no indication when construction might start.

The plant, he said, would have a peak capacity of about 500 head a week.

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Mississippi County to Vote on Poultry Plant

HATTIESBURG, MISS. — Forrest County's Board of Supervisors has agreed to call a $400,000 bond election for the purpose of financing construction of a poultry processing plant here to be operated by the Merchants Co.

The plant would be built under Mississippi's plan to balance agriculture with industry. Rent would be paid by the company retiring the bonds.

The proposed plant will employ 150 to 200 persons, said W. W. Wright of Jackson, president of the Merchants Co., which has had a wholesale grocery business here for more than 50 years.

The plant, when it reaches peak production, would process about 200,000 broilers a week. Mr. Wright said it would be the "first completely integrated poultry operation in Mississippi." The eggs will be hatched here, broilers fattened, processed and marketed, and feed will be manufactured locally.

An 18-acre piece of land on the southeastern edge of the city has been selected as the plant site. The election will probably be held in about three months.

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ASSISTANT TO TRAFFIC MANAGER needed. Good opportunity for aggressive young man with progressive Midwest feed manufacturer. Knowledge of transit necessary. Submit complete resume of education, experience, personal background, and salary required. Replies held confidential. Address Ad No. 4383, Feedstuffs, Minneapolis 40, Minn.

DISTRICT SALES MANAGER — MAJOR feed company interested in aggressive district feed sales manager for Southeast. Must have well rounded background in feed sales and capable of directing men. Give full resume and expectation in first correspondence. All replies confidential. Address Ad No. 4412, Feedstuffs, 612 Board of Trade Bldg., Kansas City, Mo.

FEED MILL SUPERINTENDENT — MAN of young or middle age to take complete charge of feed production. Mill capacity 100 tons per eight hours. Your application should contain personal history, salary requested, education, business resume and references. Applications will be held strictly confidential. Our employees know of this advertisement. Address Box 4390, Feedstuffs, Board of Trade Building, Kansas City, Mo.

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National manufacturer of vitamins needs nutritionist for its technical staff. College essential. Advanced degree desirable but not required. Salary dependent upon training and experience. Midwest location. Moderate travel. Retirement, insurance and other benefits. All replies confidential. Address Ad No. 4392, Feedstuffs, Minneapolis 40, Minn.

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WANTED—EXPERIENCED, AGGRESSIVE feed salesman for northeastern Maryland and northern Delaware. Sherwood Feed Mills, Inc., 500 President St., Baltimore 2, Md.

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HELP WANTED — PROGRESSIVE AND expanding feed processor desires high caliber salesman or manufacturer s agent to sell our line of feed ingredients to feed mills in Southeast. We would prefer salesman who would be carrying items to sell to the feed mills in addition to ours. Excellent commission basis. Address Ad No. 4372, Feedstuffs, Minneapolis 40, Minn.

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Connecticut Receives Cyanamid Grant-in-Aid

NEW YORK — The University of Connecticut has accepted a grant-in-aid from American Cyanamid Co., New York, to continue studies on diseases of dairy cattle.

The grant will be carried out under the direction of Dr. Wayne N. Plastridge, professor of animal diseases with the university's agricultural experiment station at Storrs, Conn. Dr. Plastridge's research under this grant is directed primarily to the study of vibrio infections in dairy cows with the use of a bacterin. He is also working on the control of economically important infectious diseases in dairy cattle with the use of antibiotics.

Among the diseases causing the greatest economic loss is mastitis. Streptococcus agalactiae and Staphylococcus aureus are the most common causes. Dr. Plastridge's work includes the evaluation of antibiotics against these and other organisms of economic importance in regard to mastitis treatment and control.

Nitrogen on Crops May Poison Cattle, Reports Arkansas Educator

FAYETTEVILLE, ARK. — Livestock may suffer poisoning from crops receiving high concentrations of nitrogen, Dr. O. T. Stallcup, professor of dairy husbandry at the University of Arkansas, said at the sixth annual Dairy Study Day at the University agricultural experiment station here.

Dr. Stallcup said evidence of nitrate poisoning was observed in dairy cattle grazing oats on land formerly used as a range for pullets. Although scattered, litter was concentrated where range shelters had been. The oats received 300 lb. of 5-10-5 fertilizer at planting time.

From spots heavily coated with chicken litter, the oats contained .67% nitrate nitrogen. Plants from other areas contained .11%. Nitrate nitrogen at 1.5% level in forage on a dry matter basis is considered fatal. Sub-clinical symptoms of poisoning may result from .5% level of the nitrate fraction, Dr. Stallcup said.

Symptoms of nitrate poisoning resemble those of cyanide or prussic acid poisoning. The animal's pulse rate goes up rapidly to 150 per minute, and shortened respiration, trembling, weakness and cyanosis or "blueness" of the tongue and eyeballs occur, he concluded.

Coccidiosis Treatment Is Symposium Topic

CHARLOTTE, N.C.—Developments in preventing and controlling coccidiosis in poultry were discussed by two research specialists at a symposium held at Charlotte recently.

The meeting was sponsored by Sterwin Chemicals, Inc., New York, as part of a continuing series of regional symposia dealing with coccidiosis. It was attended by over 40 representatives of the poultry and feed industry in North Carolina and South Carolina, including nutritionists and servicemen, as well as veterinarians and local college faculty members.

Prior to a general discussion period, talks were given by Dr. Fred Coulston, director of experimental pathology and toxicology, Sterling-Winthrop Research Institute, and Dr. S. A. Edgar, professor and poultry pathologist, Alabama Polytechnic Institute.

Dr. Coulston spoke on the development of the coccidiostat Trithiadol and its "high level of effectiveness and safety in poultry feed." Describing its mechanism of action, he reported it to be compatible with antibiotics and vitamins. Successful use of Trithiadol in large-scale field tests was described.

Dr. Edgar, who developed "Cocci-Vac," described as the first effective vaccine to combat the disease, predicted that future control of coccidiosis will depend increasingly on vaccine immunization plus medicated feeds. Dr. Edgar said the value of immunization has been demonstrated on both replacement stock and broilers.

Maryland Feeder Pig Sale Termed Success

WEST FRIENDSHIP, MD. — The first Maryland fall feeder pig sales averaged $36.61 cwt. for 986 pigs sold, according to reports by Dr. James R. Ferguson, Maryland livestock specialist.

With a total of almost $20,000, the sale brought an average of $19.91 per head for pigs averaging 54 lb.

"Success of the feeder pig sales in Maryland reflects the specialization taking place in the swine industry," Dr. Ferguson said. "This specialization includes purebred swine breeders, commercial feeder pig producers and commercial swine feeders," he added.

Maximum Roughage Advised for Raising Dairy Replacements

WOOSTER, OHIO — Whether or not to raise herd replacements, an important question in present-day dairy operations, may largely depend on whether a dairyman can combine high roughage feeding practices with the best use of other expense items. This is the opinion of Dr. H. R. Conrad, Dr. L. O. Gilmore and Dr. J. W. Hibbs, members of the dairy science department at the Ohio Agricultural Experiment Station here.

Reporting in a recent issue of Ohio Farm and Home Research, publication of the station, the researchers said the other expense items to be considered include bedding, shelter and fencing, water supply and labor. These, they said, are largely predetermined by the facilities available at each farm.

More specialized and intensive use of dairy farm resources for the output of milk has caused some dairymen to question the value of raising their own herd replacements and to consider the desirability of farming out their calves to farmers who have indicated an interest in raising dairy herd replacements on a contract basis, the researchers said.

The major expense in raising replacements, they said, is feed. It represents about two thirds of the cost. Therefore, they suggest a feeding program based on maximum use of roughages as a low-cost approach to the dairy herd replacement enterprise.

"Whether or not raising herd replacements becomes a profitable undertaking, then, may largely depend on whether high roughage feeding can be combined with best use of other expense items," they said.

Records kept of the feed consumption of large and small breeds of dairy cattle in conjunction with various growth studies at the Ohio station have resulted in accurate data which have been used to estimate feed costs of raising heifers from birth to 25 months. The researchers offered these figures as guides to dairymen.

The amounts of feed consumed to six months of age by small breeds (Jerseys and Guernseys) were: 290 lb. milk, 285 lb. grain and 630 lb. hay at a calculated total cost of $29.34. Large breeds (Holsteins and Brown Swiss) consumed 380 lb. milk, 350 lb. grain and 820 lb. hay for a total cost of $42.30.

Average monthly feed intake during the age period of six months to one year was 68 lb. grain, 210 lb. hay and 195 lb. silage for the light breeds, whereas the heavy breeds consumed 81 lb. grain, 244 lb. hay and 228 lb. silage. Monthly costs from 6 to 12 months were $6.25 and $7.33 for the small and large breeds, respectively.

During the age period of 12 to 25 months, small breed heifers averaged 106 lb. grain, 325 lb. hay and 304 lb. corn silage, compared with 110 lb. grain, 367 lb. hay and 331 lb. silage for the large breeds. Monthly costs increased to $9.69 for lighter breeds and $10.55 for heavier breeds.

Feed prices per 100 lb. used in calculating costs were: milk, $5; grain, $3; hay, $1.25, and corn silage, 60¢. In addition to the cost of actual feed consumed, 15% was added to the hay cost to compensate for the cost of refusal.

The amount of feed needed to six months of age was based on results obtained from earlier experiments in which several hundred calves were raised on the "Ohio high roughage system," the researchers said.

Feed consumption data for the period of six through 25 months of age were obtained with 12 growing heifers of various breeds. The cattle were maintained on a high roughage ration of about four parts roughage to one part grain on a dry basis.

In practice, this was accomplished by feeding mixed hay, corn silage and grain in a 4:3:1 ratio. About 15% of the hay was allowed to be refused, which assured maximum roughage intake.

North Dakota Reports On Use of Wet Corn In Rations for Poultry

FARGO, N.D.—Wet corn handled properly can be fed to poultry during winter months with results equal to No. 2 corn on a moisture-free basis, according to North Dakota Agricultural Experiment Station researchers here.

Reporting in North Dakota Farm Research, publication of the station, W. C. Lockhart, Reece L. Bryant and D. W. Bolin said this conclusion was drawn from an experiment in which each of three lots of corn containing 13, 17 and 24% moisture was mixed into a chick starter diet of the high efficiency type and fed to chicks. Each treatment was fed to two lots of 100 chicks distributed at random.

Growth and feed efficiency data were collected at four and eight weeks of age. Results of these measurements showed that growth at four and eight weeks was very much the same for all lots and didn't appear to be affected by the treatment.

Feed efficiency varied directly with moisture content, and only little difference existed on a moisture-free basis.

Evaluation of metabolizable energy of the three rations showed caloric values of corn lots containing 13, 17 and 24% moisture to be 1,484, 1,403 and 1,312, respectively. The caloric values varied inversely to moisture content and the relationship followed a linear pattern.

No attempt was made to study the different lots of corn under varied temperature conditions. At brooding-room temperatures of 70 to 75°, diets 1 and 2 kept well, while the third diet heated if it was not stirred frequently. Whole corn in all lots kept well when stored in 100-lb. bags at a temperature range of 40 to 45°.

Mortality of the chicks during the brooding period was nil and was not affected by any treatment, the researchers said.

T. R. Stoner

TRANSFERRED—Wirthmore Feeds, Inc., Waltham, Mass., has announced that T. R. Stoner, Friedens, Pa., has been transferred from that area to southern Ohio, where he will work with Wirthmore distributors and the firm's poultry and dairy service representatives, Jerrold E. Haddix, district sales manager at Buckhannon, W. Va., will supervise the area formerly served by Mr. Stoner. The transfers were announced by Ralph E. Dower, Toledo, division sales manager of Wirthmore's central region.

Appoint Claude O'Neil To Reid-Strutt Position

PORTLAND, ORE.—Claude O'Neil has been appointed Spokane, Wash., representative for the Reid-Strutt Co., Inc., it has been announced by Duane Tyler, Portland, president of the company.

Mr. O'Neil has a background of 13 years in the seed and grain industries of the Pacific Northwest. He has spent several years as mill foreman for the Jacklin Seed Co., Dishman, Wash., and he has also installed machines and aided in the development of new equipment.

In announcing Mr. O'Neil's appointment, Mr. Tyler stated, "Mr. O'Neil's thorough knowledge of machinery is an asset to our company and will be of great assistance to the area of eastern Washington, northern Idaho and western Montana, the territory he will cover."

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AFMA COMMITTEE—Public relations committee of the American Feed Manufacturers Assn. and some AFMA officials (left to right): George Soule, E. I. du Pont de Nemours & Co.; Bob Morton (attending for J. D. Sykes), Ralston Purina Co.; W. E. Glennon, AFMA president; Warren Ranney, Cooperative G.L.F. Exchange; Eli Wiggins, Eastern States Farmers Exchange; R. L. Kathe, AFMA public relations director; W. T. Diamond, AFMA secretary-treasurer; Dr. J. L. Krider (chairman), Central Soya Co.; Harry Patrick, Chas. Pfizer & Co.; O. M. Ray, AFMA director of market research; Bill Pearce, Cargill, Inc.; Bill Murphy, Eli Lilly & Co., and Jack Lafferty, John W. Eshelman & Sons. Committee members not present for the picture include: Bill Corwin, Southern States Cooperative; Joe Ferris, Doughboy Industries, Inc.; Bayne Freeland, Quaker Oats Co., and J. D. Sykes, Ralston Purina Co.

AFMA

(Continued from page 1)

was held in Chicago recently. A detailed review was made of AFMA public relations activities since 1940. During the next six months, the committee will examine closely all current AFMA activities and evaluate projects according to the following basic association objectives: (1) member and industry relations; (2) coordination and stimulation of individual member-company public relations efforts, and (3) a limited number of public relations activities between AFMA and its various publics.

Mr. Riggs commented, "Public relations in the feed industry, and for agriculture, is a young and growing field. Although much has been done, problems are expected to multiply. As our industry and agriculture become more specialized, successful and in the public spotlight, our relations with many groups will become increasingly complex. We are pleased at the growing participation of feed companies in this field, and confident of progress to be made through combined efforts of all firms working toward the mutual goal of service to agriculture."

BIG BROILER STATE

ATHENS, GA.—Poultrymen at the agricultural extension service of the University of Georgia said there were 861 growers in Georgia last year who grew out a total of 18,998,000 broilers in 96 counties which were not classified as commercial broiler counties.

INSPECTION

(Continued from page 1)

not been approved by Oct. 1, would have to operate without the inspection plan or pay for a voluntary inspection service provided under the Agricultural Marketing Act.

The new law, called the Poultry Products Inspection Act, requires that poultry will be banned from interstate commerce unless it is federally inspected.

Cause of Confusion

Much of the confusion as to how the law would go into effect stemmed from a recent USDA amendment to the law, which stated that: "Exemptions for certain 'further' processing operations have been provided in the amended regulations, because it has been determined that it will be impracticable to provide inspection of all poultry processing operations and that exempting these 'further' processing operations will aid in the effective administration of the Act." (Another story about the inspection law appears on page 70, this issue of Feedstuffs.)

Several industry spokesmen have indicated that they believe a lack of USDA funds to administer the program, or at least a misunderstanding as to the availability of such funds, prompted the amendment to exempt a large number of processing plants. A late announcement by Hermon I. Miller, director of the poultry division of the USDA Agricultural Marketing Service, has confirmed, however, that inspectors are available to serve most of the processing plants.

Harold Ford, executive secretary of the Southeastern Poultry & Egg Assn., said that many processors in his area estimated that the inspection plan would add 1-1.5¢ lb. to processing costs, and that therefore his organization was anxious to have the plan go into effect completely, or be postponed. He said that before the USDA changed the blueprint-approval deadline, an estimated 30% of southeastern processing plants would not have been under inspection on Jan. 1.

Frank Frazier, Richmond, Va., executive vice president of the National Broiler Council, said he had heard of very few complaints from processors in his area, and that he expected the program to go into effect with no more than minor conflicts. He said also that he didn't think the inspection would result in any increase in processing costs.

Mr. Ford explained that processing costs would go up because the USDA provides inspectors for 40 hours only, with the processor bearing the cost of overtime work, and because processing lines will be slowed down somewhat.

A number of processors had expressed the fear that broiler prices would drop several cents a pound if USDA had proceeded with plans to exempt some, but not all of the plants qualified for inspection.

Youngblood Organizes New Corporation

WACO, TEXAS—A complete reorganization and consolidation of the Youngblood poultry organization in Waco and other Texas cities under a new corporation, Youngblood's, Inc., was announced by J. H. Youngblood, founder of the company.

Youngblood's, Inc., capitalized at $2 million fully paid in, became effective on Jan. 2. On that date all departments of the Youngblood organization including hen farms, broiler farms, feed mill, hatchery, processing plant, sales organization and restaurants were merged into one corporation and will be under a centralized control, Mr. Youngblood said.

In the merger the corporation has purchased the interests of J. W. (Weldon) Youngblood of the old company. He will devote his time to expanding his farming and cattle operations. J. H. Youngblood will retain his interest in the organization and will be chairman of the board of directors of the new corporation. Ovid Youngblood will be corporation president and other members of the board of directors consist of a group of unidentified business men.

"Placing all departments of our organization under a centralized control," says J. H. Youngblood, "will enable us to be more flexible and to expand any department more quickly and easily. It will simplify our entire system of operation."

BROILER INDUSTRY

(Continued from page 1)

duction are three things that might increase producer returns, he said.

Population increase and a higher standard of living along with promotion could increase consumer demand, he pointed out to the producers.

"Production must vary seasonally to match the seasonal variations in consumer demand," he said. "The industry must produce to suit the market not just sell what is produced."

"The market is changing continuously and it is possible that market prices will become more erratic in the year ahead," Mr. Larkin added.

Panel Discussion

Participating in a panel discussion were Dr. L. M. Greene and Dr. M. S. Cover, poultry pathologists with the University of Delaware School of Agriculture; Dr. Thomas Coulton, Cooperative Mills research and evaluation farm, Greenwood; and Dr. I. M. Moulthrop, livestock sanitation service, Salisbury, Md., who also served as panel moderator.

Other speakers were Joseph A. Friedman, broker, New York Mercantile Exchange, "A Futures Exchange for the Selbyville Auction;" Dr. G. F. Combs, University of Maryland, "Recent Developments in Broiler Nutrition;" Harold M. Williams, president, Institute of American Poultry Industries, Chicago, "Managerial Planning;" and Dr. Alfred Van Wagenen, managing director, Northeastern Poultry Producers Council, Inc., Trenton, N.J., "Government Controls Will Get You in Trouble."

Nominations for Toledo Board of Trade Told

TOLEDO—Sam L. Rice, Jr., vice president of the Rice Grain Co., Toledo, was nominated without opposition, as the 1959 president of the Toledo Board of Trade.

Other officers nominated also without opposition, were: Thomas B. Irish, Spencer Kellogg & Sons, Inc., first vice president; Kenneth R. Lenhardt, Cargill, Inc., second vice president; Paul M. Barnes, Lansing Grain Co., treasurer, and Alfred E. Schultz, secretary.

Nominations of the officers are tantamount to election. There are eight nominees for seven seats on the board of directors. They include: Fred M. Alexander, plant manager, General Mills, Feed Division, retiring board president; William L. Adler of National Biscuit Co.; John D. Anderson, Anderson Elevator Co.; Paul Atkinson, Norris Grain Co.; George J. Forrester, Forrester Grain Co.; Owen J. Jeffrey, J. B. Grain Co.; Donald M. Mennel, Mennel Milling Co., and Edward W. Peters, Wirthmore Mills.

NFIA DIRECTORS MEET—Directors of the National Feed Ingredients Assn. met in Chicago recently. In the first picture (left to right) are: Standing—S. Tapper, Dawe's Laboratories, Chicago; T. Walter Hardy, Jr., Hardy Salt Co., St. Louis; Horace Hedges, Columbia Hog & Cattle Powder Co., Kansas City; C. S. Langen, Moorman Manufacturing Co., Quancy, Ill.; Jack Swanson, Carroll Swanson Sales Co., Des Moines; William Power, Puritan Laboratories, Inc., Des Moines; William A. Rothermel, Merck & Co., Chicago. Seated—W. P. Mann, Wally Mann Sales Co., Inc., Omaha; John Westberg, International Minerals & Chemical Co., Skokie, Ill.; Peter Janss, Des Moines. Shown in the second picture are: Back row—Claude Butcher, Butcher Manufacturing Co., Elwood, Ind.; E. H. Werning, Pioneer Laboratories, Des Moines; Paul Bonewitz, Bonewitz Laboratories, Burlington, Iowa. Front row—Art Swarzentruber, Vigortone Products Co., Cedar Rapids, Iowa; Harold Swanson, Nopco Chemical Co., Newark, N.J.; Gladwin A. Read, Gladwin A. Read Co., Evanston, Ill.; Maurice E. Baringer, Oelwein (Iowa) Chemical Co.; William E. Noble, Oelwein (Iowa) Chemical Co.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Boston: Demand light; supply good; 600 D, 1,500 A 17½¢ lb.; 300 D, 2,250 A 18¢; 400 D, 3,000 A 20¢; 300 D, 3,000 A 19½¢; 300 D, 1,500 A 16½¢; 300 D, 750 A 14⅝¢; 75 D, 750 A 14½¢.

Minneapolis: 10,000 A 35¢ lb.; 300 D, 2,250 A 21½¢ lb.; 300 D, 1,500 A 20½¢ lb.; 300 D, 75 A 18⅝¢ lb.

Denver: Demand fair; trend steady; supply good; 2,250 A, 300 D 22¢ lb., Denver.

Chicago: Demand fair; supply adequate; straight A feeding oil, with 10,000 units vitamin A per gram 7@8¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

New York: Demand fair; trend steady; supply limited; price per lb. in 55 gal. drums (413 to 420 lb.): 300 ICU, 750 A 13⅛ @15½¢, 1,500 A 15½@17¢, 2,250 A 17½@20¢, 3,000 A 19½@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢; f.o.b. Massachusetts, New York or Pennsylvania.

ALFALFA MEAL

New Orleans: Demand good; supply ample; trend steady; 17% $65@66; pellets $59@61.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $66.

Memphis: Demand light; trend steady; supply adequate; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $58.

Boston: Demand good; supply adequate; dehydrated, 17% $68; suncured, 13% $48, nominal.

Philadelphia: Trend unsettled; 17%, 100,000 A $65.50.

Omaha: Demand good; supply limited; 17% dehydrated, 100,000 A units, bulk pellets $51; sacked meal $56, Omaha basis.

Denver: Demand good; trend firm; supply ample; dehydrated, 17% $48.

Buffalo: Demand poor; trend steady; supply adequate; $66.50, sacked, Boston.

St. Louis: Demand slow; trend steady; supply ample; 13% fine suncured $40; dehydrated, 17%, 100,000 A $58.

Kansas City: Demand good; trend firm; supply adequate for present, but tightness expected before new production; dehydrated alfalfa with 17% protein and 100,000 units vitamin A guaranteed on arrival: reground pellets $55@56, sacked; oiled meal $57@58, sacked; pellets $50@51, bulk; 18% protein, 125,000 units A meal $62, sacked; suncured meal demand is slow with supplies adequate, price unchanged. No. 1 fine ground $33@33.50, No. 1 ¼-in. $31.50, No. 2 ¼-in. $29.50, sacked.

Ft. Worth: Demand good; supply sufficient; 17% protein dehydrated $60, delivered Ft. Worth area, truck; Kansas dehydrated, 17%, 100,000 A $62.80, rail; suncured 13% No. 1 ¼-in. grind $39, truck or rail, immediate.

Los Angeles: Demand fair; trend unchanged; supply adequate; dehydrated meal, 17% protein, 100,000 A $49; dehydrated pellet meal, 17% protein, 100,000 A $52; suncured crumbles, 15% protein $43@44; suncured meal $41@42.

Chicago: Demand fair; supply adequate; 17% dehydrated, with 100,000 units vitamin A guaranteed $59; 13% No. 1 fine ground $48@49.

Seattle: Demand fair; trend firm; supply good; 15% protein suncured $44, delivered, truck loads; 136,000 A unit dehydrated $69, delivered, truck loads.

Minneapolis: Good demand; supply adequate; market strong; 17%, 100,000 units A, reground pellets $57 bulk, Minneapolis; oiled reground $59, bulk, Minneapolis.

Portland: Demand good; supply ample; trend unchanged; 15% suncured $41; dehydrated $65.

ANIMAL FAT (STABILIZED)

San Francisco: Demand fair; supply ample; bleachable fancy 8¢ lb.; yellow grease 7¼¢ lb.

New Orleans: Demand fair; trend steady; supply adequate; 7⅛@8¢ lb., tank cars.

Louisville: Demand slow; trend steady; supply normal; bleachable fancy 7¾¢ lb.; white tallow 8¢ lb.; yellow grease 6¾¢ lb.; advance expected in early January.

Boston: Demand and supply good; $152.50.

Kansas City: Demand slow from feed mixers; trend steady; supply ample; 7⅛¢ lb., tank car.

Chicago: Demand and supply fair; bleachable fancy tallow, tank truck or carlots 7⅜@7½¢ lb., yellow grease 7¢ lb.

Ft. Worth: Demand fair; supply sufficient; prime tallow, tank cars 7⅛¢ lb.; drums 9¢ lb., f.o.b. north Texas packing plants with returnable drums.

St. Paul: Lack of trading during holidays resulted in weak market and nominal price of 7¼¢ lb., f.o.b. producer's plant for bleachable fancy tallow.

BARLEY FEED

Boston: Demand and supply steady; $45.

New Orleans: Demand slow; trend unchanged; supply light; $60@61.

San Francisco: Demand fair; supply ample; rolled $63.50, ground $62.50.

Ogden: Supply normal; rolled $51@56; whole barley $43@48.

Philadelphia: Trend steady; supply ample; pulverized $48.

Los Angeles: Demand fair; trend unchanged; supply adequate; standard rolled $3.28 cwt.; standard ground $3.28 cwt.

Chicago: Demand excellent; supply tight; $39.

Baltimore: Demand excellent; supply tight; $49.50.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 80 granular $31.50; 200 mesh fine $31.

Chicago: Demand steady; supply adequate; f.o.b. Wyoming and South Dakota shipping points; granular 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots; 80 granular $13.50 net; 200 mesh fine $13.25 net.

BLOOD FLOUR

Louisville: Demand fair; trend steady; supply good; $95@100.

BLOOD MEAL

New Orleans: Demand fair; trend unchanged; supply light; $110@115.

Louisville: Demand fair; trend steady; supply normal; $95@100.

San Francisco: Demand good; supply tight; $7 a unit of ammonia.

Ogden: Supply average; $110 in 100-lb. bags, f.o.b. Ogden.

Los Angeles: Demand slight; trend unchanged; supply adequate; $7.50 a unit of ammonia.

Chicago: Demand and supply fair; $130 @140, guaranteed 80% protein.

BONE MEAL (STEAMED)

New Orleans: Demand slow; trend steady; supply normal; $85@90.

San Francisco: Demand good; supply ample; $75.

Louisville: Demand slow; trend steady; supply normal; $90@95.

Boston: Demand and supply steady; $90.

Cincinnati: Demand fair; trend steady; supply short; $110, sacked, Cincinnati.

Ft. Worth: Demand fair; supply light; $85, f.o.b. Ft. Worth, local manufacture.

Chicago: Demand good; supply fair; $85 @95.

Buffalo: Demand good; trend steady; supply limited; $95, sacked.

Los Angeles: Demand fair; trend steady; supply adequate; imported $73.50 in 20-ton lots.

Seattle: Demand steady; trend firm; supply good; $87, ex-dock, truck lots.

Denver: Demand good; trend strong; supply tight; $77.50, nominal until February, Bay Shore, Cal.

Portland: Demand slow; supply ample; trend unchanged; $100.

BREWERS DRIED GRAINS

Philadelphia: Trend steady; $65.

Louisville: Demand fair; trend steady; supply normal; $52.

Cincinnati: Demand poor; trend steady; supply adequate; $60.

Boston: Demand active; supply scarce; 26%, none offered;; Canadian, 22% $57.50.

New Orleans: Demand fair; trend steady; supply normal; $54.50@55.50.

San Francisco: Demand fair; supply ample; $54.

Los Angeles: Demand and trend steady; supply adequate; $49.50 bulk, $53.50 sacked.

Ft. Worth: Demand slow; supply moderate; 26% protein $58.75, January, delivered Ft. Worth.

Chicago: Demand fair; supply tight; 26% $52@53.

St. Louis: Demand good; trend steady; supply fair; $52.

Buffalo: Demand and supply fair; trend steady; $58, bulk, Boston.

BREWERS DRIED YEAST

Louisville: Demand slow; trend steady; supply good; 10@10½¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb.

Boston: Demand and supply steady; 10¢ lb.

Buffalo: Demand good; trend steady; supply ample; $10.65 cwt.

Los Angeles: Demand steady; trend unchanged; supply adequate; 10¢ lb. in 5-ton lots; 11¢ lb. in 1-ton lots; 12¢ lb. in less than 1-ton lots.

Chicago: Demand good; supply limited; 10@11½¢ lb. in carlots; 10¼@12¼¢ lb., l.c.l.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Milwaukee: Demand good; supply limited; 10½@11½¢ lb. in carlots; 10¾@12½¢ lb., l.c.l.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

St. Louis: Demand good; supply limited; 10¢ lb. in carlots; 11¢ lb. in ton lots; 12¢ lb. in less than ton lots.

Portland: Demand slow; supply ample; trend unchanged; 8½¢ lb.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

BUTTERMILK-CONDENSED

Louisville: Demand dull; trend steady; supply light; $4.25 cwt.

San Francisco: Demand fair; supply good; $5 cwt.

Boston: Demand slow; supply light; 3½¢ lb.

New Orleans: Demand slow; supply normal; trend steady; $4.25@4.30 cwt.

Wichita: Demand slow; supply sufficient; $2.90 cwt. in barrels.

Ogden: Supply normal; $4.40, 100-lb. drum.

Philadelphia: Trend steady; $4.25 cwt.

Chicago: Demand light; supply adequate; $3.25@3.50 cwt. in carlots.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight and tax)

New York: Crystals $15.28, flour $10.28.

Buffalo: Crystals $16.11, flour $11.11.

Toledo: Crystals $17.96, flour $12.96.

Boston: Crystals $16.53, flour $11.63.

Limecrest, N.J.: Crystals $10.50, flour $5.50.

CALCIUM CARBONATE

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Los Angeles: Demand slow; trend unchanged; supply ample; $10.25.

Chicago: Demand steady; supply adequate; fine grind, plain $9.54, 100-lb. bags; bulk, in hopper cars, fine grind $7.54; bulk in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50-lb. bag $12.25, 100-lb. bag $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

CHARCOAL

San Francisco: Demand steady; supply ample; $141.

Boston: Demand and supply light; $100.

Chicago: Demand quiet; supply adequate; poultry charcoal $110 in 50-lb. multiwalls.

COCONUT OIL MEAL

San Francisco: Demand good; supply tight; solvent $82.50.

Los Angeles: Demand fair; trend unchanged; supply limited; copra cake $85 @87.

Seattle: Demand fair; trend strong; none available; $90, ex-dock, Seattle (Philippine production).

Portland: Demand slow; supply light; trend firm; $84.

COD LIVER OIL (FORTIFIED)

Boston: Demand fair; supply good; 600 D, 2,250 A 19¢ lb.; 300 D, 3,000 A 20½¢ lb.; 300 D, 2,250 A 18½¢ lb.; 600 D, 1,500 A 18¢ lb.; 300 D, 1,500 A 17¢ lb.

New York: Demand limited; trend steady; supply fair; price per lb. in 55 gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 18½@20¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 600 ICU, 1,500 A 17½@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

Boston: Demand active; supply scarce; 5¢ lb., nominal.

New Orleans: Demand light; supply limited; trend steady; 50% solid $95@98, f.o.b. Gulf.

Los Angeles: Demand steady; trend unchanged; supply limited; 5¢ lb.

New York: Demand fair; trend steady; supply good; 5¢ lb., f.o.b. eastern shore.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $57.80, meal $89.80.
Atlanta: Feed $63.98, meal $95.98.
Birmingham: Feed $62.64, meal $94.64.
Boston: Feed $62.84, meal $94.84.
Chicago: Feed $51, meal $83.
Cleveland: Feed $59.14, meal $91.14.
Denver: Feed $61.61, meal $93.51.
Ft. Worth: Feed $59.96, meal $91.96.
Indianapolis: Feed $56.36, meal $88.36.
Kansas City: Feed $51, meal $83.
Louisville: Feed $58.21, meal $90.21.
New Orleans: Feed $61.20, meal $93.20.
New York: Feed $62.43, meal $94.43.
Norfolk: Feed $61.71, meal $93.71.
Philadelphia: Feed $62.03, meal $94.02.
Pittsburgh: Feed $59.96, meal $91.96.
St. Louis: Feed $51, meal $83.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $59.

Louisville: Demand slow; trend steady; supply light; $61.45.

COTTONSEED OIL MEAL

Memphis: Demand moderate; trend lower; supply limited; prime 41% protein, old process $70; new process, 41% solvent $69.50.

San Francisco: Demand good; supply tight; 41% solvent $76; 44% solvent $72.70.

Louisville: Demand slow; trend steady; supply ample; old process $76.50; new process $75.50.

Boston: Demand good; supply fair; $86.

Cincinnati: Demand poor; trend steady; supply fair; $78.

Wichita: Demand good; supply sufficient; 41% old process $76.

New Orleans: Demand light; supply average; trend steady; $78@78.50.

Philadelphia: Trend unsettled; $83.50.

Ogden: Supply normal; 41% $66@71.

Denver: Demand good; trend strong; supply very tight; sacked basis, 3% fat $74, nominal, January, February, March.

Los Angeles: Demand good; trend steady; supply light; $68.

Kansas City: Demand light; trend steady; supply very tight; old process $70, sacked, Memphis; solvent meal $70.

Ft. Worth: Demand excellent for meal, slow for hulls; limited offerings; carlots, 41% old process $72, prompt; pellets $3 additional; cottonseed hulls $16.

Atlanta: Demand fair; trend steady; supply ample; 41% $73, f.o.b. producing points.

Buffalo: Demand fair; trend steady; supply adequate; $85.50, Boston.

Portland: Demand good; trend higher; supply light; $75.

Seattle: Demand good; trend strong; supply limited; 41% expeller process $82, truck lots.

Chicago: Demand good; supply tight; hydraulic $71.50; solvent $70, basis Memphis.

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL, POWDERED

Cincinnati: Demand fair; trend steady; supply adequate; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

New York: Demand and supply good; trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

Kansas City: Demand fair; trend steady; supply adequate; 1,500 ICU 9⅝@10¢ lb.; 3,000 ICU 11⅞@12¢ lb. in ton lots or larger.

D ACTIVATED PLANT STEROL, POWDERED

Chicago: Demand good; supply adequate; 4,000,000 U.S.P. units per lb.; 15¢ lb. in ton lots; less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

Cincinnati: 18% phosphorus $81, sacked; 13% phosphorus $64.98, sacked, f.o.b. Cincinnati.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $69.12 net ton, f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $71.50, net ton, f.o.b. Houston, 100-lb. multiwall paper bags; $68.50 in bulk.

Coronet, Fla.: Minimum phosphorus 17%, minimum calcium 34%, maximum fluorine .17%, carload $60, truckload $60.75, net ton, f.o.b. Coronet in 100-lb. multiwall bags, $57 and $57.75 in bulk.

Cincinnati: 18% phosphorus $81, sacked; 13% phosphorus $64.98, sacked, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Texas City, Texas: 18.5% minimum phosphorus, 21% minimum calcium, 24% maximum, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers, $3 net ton less than bagged material.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Minneapolis: 18.5% phosphorus, 24% calcium granular or fine ground $94.10, delivered; $3 less in bulk.

Trenton, Mich.: Minimum phosphorus 18½%, maximum fluorine .03% guaranteed $83.25, f.o.b. Trenton in 100-lb. multiwalls; minimum phosphorus 21%, maximum fluorine .03% guaranteed $94.50, f.o.b. Trenton in 100-lb. multiwall bags.

Cincinnati: 18½% phosphorus $92@93.

Portland: Demand slow; supply ample; trend unchanged; $115.

DISTILLERS DRIED GRAINS

Louisville: Demand good; trend steady; supply fair; bourbon grains: light $55, dark $56, solubles $77; January prices.

Boston: Demand active; supply scarce; light $65, dark $66, both nominal.

Cincinnati: Demand poor; trend steady; supply adequate; $52.

San Francisco: Demand fair; supply ample; solubles $85.

Philadelphia: Trend unsettled; $63.

DRIED BEET PULP

Boston: Demand good; supply fair; $58.

New Orleans: Demand fair; trend unchanged; supply ample; $60@61.

San Francisco: Demand good; supply fair; $51.50.

Ogden: Supply normal; $40@44.

Atlanta: Demand fair; trend steady; supply ample; $65.25.

Ft. Worth: Demand fair; supply sufficient; carlots, 50-lb. papers, January, plain or molasses $56.33, delivered Ft. Worth.

Buffalo: Demand and supply fair; trend steady; $57.50, Boston.

Los Angeles: Demand good; trend unchanged; supply adequate; molasses $47.10 @50.50.

Portland: Demand slow; supply ample; trend unchanged; $52.

DRIED BUTTERMILK

San Francisco: Demand fair; supply ample; 11¢ lb.

Louisville: Demand slow; trend strong; supply ample; 12@12½¢ lb.

New Orleans: Demand slow; supply ample; trend steady; $11.50@12 cwt.

Buffalo: Demand good; trend steady; supply limited; $11.85 cwt.

Chicago: Demand good; none offered; medium acid, nominally $11@11.25; sweet cream $11.25@11.50 cwt., in carlots.

New Orleans: Demand slow; supply ample; trend steady; $11.50@12 cwt.

DRIED CITRUS PULP

Boston: Demand quiet; supply nil; $57.50, nominal.

San Francisco: Demand and supply fair; meal $54.
New Orleans: Demand fair; trend steady; supply ample; $50@54.50, f.o.b. Florida.
Los Angeles: Demand good; trend steady; supply limited; orange pulp $43, bulk; lemon pulp $41 bulk.
Atlanta: Demand good; trend weak; supply ample; $37.50@40, f.o.b. Florida shipping points; meal $37.50.
Boston: Demand quiet; supply nil; $57.50, nominal.

DRIED SKIM MILK

Boston: Demand good; supply short; 12¢ lb.
San Francisco: Demand and supply fair; 13⅛¢ lb.
Louisville: Demand fair; trend steady; supply normal; 11½@12¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; 10½@10¾¢ lb.
New Orleans: Demand slow; supply ample; trend steady; $11.50@12 cwt.
Philadelphia: Trend steady; $12.50 cwt.
Ogden: Supply normal; $15.15, 100-lb. drum.
Buffalo: Demand good; trend steady; supply ample; spray $10.65 cwt.
Boston: Demand good; supply short; 12¢ lb.
San Francisco: Demand and supply fair; 13⅜¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; 10½@10¾¢ lb.
Ogden: Supply normal; $15.15, 100-lb. drum.
Chicago: Demand good; supply light; $10.65@11 cwt. in carlots.

DRIED WHEY

San Francisco: Demand steady; supply good; $5.50 cwt.
Boston: Demand steady; supply light; 5⅝¢ lb.
Louisville: Demand slow; trend steady; supply normal; 6@6⅛¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.
Ogden: Supply average; $6.90, 100-lb. bag.
New Orleans: Demand fair; trend unchanged; supply adequate; $6@6.50 cwt.
Philadelphia: Trend steady; $6.25 cwt.
Chicago: Demand fair; supply adequate; $5.50, f.o.b. plant.
Kansas City: Demand fair; trend steady; supply light; $5.50 cwt., producers' points for regular and partially delactosed.
San Francisco: Demand steady; supply good; $5.50 cwt.
Louisville: Demand slow; trend steady; supply normal; 6@6⅛¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.
Ogden: Supply average; $6.90, 100-lb. bag.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6, January, sacked, delivered Ft. Worth; $6.25 January, ton lots, f.o.b. warehouse, Ft. Worth.

FEATHER MEAL (HYDROLYZED)

Boston: Demand good; supply tight; $85.
Atlanta: Demand good; trend strong; supply critical; 85% $103.
Boston: Demand good; supply tight; $95.
Ft. Worth: Demand fair; supply moderate; 85 to 87% protein $95, f.o.b. trucks, north Texas plants.

FISH MEAL

Boston: Demand active; supply scarce; imported $161.
Louisville: Demand slow; trend steady to strong; supply light and scarce; $170.
Cincinnati: Demand fair; trend steady; supply adequate; $164.
San Francisco: Demand good; supply tight; imported $2.42½ a unit of protein; domestic $2.48.
New Orleans: Demand light; supply limited; trend steady; menhaden, 60% $163@164; scrap $145@147, f.o.b. Gulf.
Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $151@153.
Los Angeles: Demand fair; trend steady; supply light; local production, 60% protein $2.40 a unit.
Boston: Demand active; supply scarce; imported $161.
Portland: Demand good; supply ample; trend unchanged; $2.25, f.o.b. Vancouver.
Buffalo: Demand good; trend steady; supply limited; 60% protein, menhaden $180 bulk, $185 sacked.
Louisville: Demand slow; trend steady to strong; supply light and scarce; $170.
San Francisco: Demand good; supply tight; imported $2.42½ a unit of protein; domestic $2.48.
Atlanta: Demand good; trend strong; supply limited; 60% menhaden meal $165, North Carolina producing points; 60% imported meal $160, ex-vessel, Gulf ports.
Denver: Demand good; trend strong; supply very tight; $2.35 a unit of protein, f.o.b. West Coast.
Ft. Worth: Demand good; supply limited; 60% Angola $163, f.o.b. Houston, prompt.
Chicago: Demand good; supply tight; eastern menhaden fish meal, 60% protein $160@163; Gulf, no offerings; western blended, 60% protein, no offerings; Northwest herring-salmon blend, no offerings; Canadian herring, 73% protein $2.20@2.25 a unit of protein, subject to production.
Seattle: Demand fair; trend steady; supply good; $2.33 a unit protein, delivered truck lots (Canadian production).

HAY

Boston: Demand and supply steady; No. 2 timothy $40@42.
Louisville: Demand fair; trend steady; supply good; No. 1 hay, any variety $23@25; No. 2 hay, any variety $21@23; any straw $20@23; straw demand very strong in connection with highway building.
Cincinnati: Demand fair; trend steady; supply adequate; No. 1 timothy $34; No. 1 second cutting green alfalfa $31; mixed $27; wheat or oat straw $19.
Wichita: Demand poor; supply ample; prairie $12, alfalfa $12@14.
Ogden: Supply normal; $1@1.25 bale; $18 ton in the barn.
Philadelphia: Trend steady; $32@35.
Los Angeles: Demand fair; trend steady; supply adequate; U.S. No. 1 $33@35; U.S. No. 2 leafy $30@32; U.S. No. 2 green $28@30; U.S. No. 2 $24@26.
Denver: Demand poor; trend slow; supply ample; alfalfa baled $24 and $25, first and second cutting, delivered in Denver.
Boston: Demand and supply steady; No. 2 timothy $40@42.
Ogden: Supply normal; $1@1.25 bale; $18 ton in the barn.
Philadelphia: Trend steady; $32@35.
Ft. Worth: Demand fair for alfalfa, practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $36@38, No. 2 $34@36; prairie, No. 2 $26@28; No. 2 Johnson grass $24@26, delivered Texas common points.

HOMINY FEED

Cincinnati: Demand fair; trend steady; supply adequate; $51.50.
Louisville: Demand slow; trend steady; supply normal; $51.
Boston: Demand steady; supply adequate; $58.50.
Memphis: Demand poor; trend higher; supply adequate; white $51.50, yellow $54.
New Orleans: Demand light; supply adequate; trend steady; $49.50@50.50.
Cincinnati: Demand fair; trend steady; supply adequate; $51.50.
Louisville: Demand slow; trend steady; supply normal; $51.
Buffalo: Demand and supply fair; trend steady; $55, bulk, Boston.
Boston: Demand steady; supply adequate; $58.50.
Memphis: Demand poor; trend higher; supply adequate; white $51.50, yellow $54.
Kansas City: Demand fairly good; trend steady; supply tight; yellow $40, bulk, $3.50 more for sacks; scattered January quoted at $37.50, bulk.
Chicago: Demand good; supply tight; $48.50@49.

LINSEED OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; new process $91; old process $92.
New Orleans: Demand fair; trend firm; supply limited; $81@81.50.
Philadelphia: Demand good; trend unsettled; supply tight; 34% $93.
San Francisco: Demand fair; supply ample; $75.
Boston: Demand and supply light; $87.
Louisville: Demand dull; trend strong; supply light; old process $94, new process $88.50.
Wichita: Demand slow; supply ample; 34% $86.
Kansas City: Demand fair; trend steady; supply very tight; old process and solvent meal $74.50, bulk, Minneapolis.
Denver: Demand fair; trend good; supply tight; $93.50.
Chicago: Demand good; supply scarce; solvent $77; expeller, nominally $78, basis Minneapolis.
Ft. Worth: Demand fair; offerings extremely light; most mills sold up through January; carlots 34%; solvent $98.50 January, $92.50 February; pellets $2.50 premium.
Seattle: Demand fair; trend firm; supply limited; $82, delivered, carloads, 34% protein.

MALT SPROUTS

Boston: Demand and supply limited; $42.50.
Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $50.
New Orleans: Demand fair; trend steady; supply limited; $45@47.
Chicago: Demand fair; supply adequate; No. 1 $44.

MEAT AND BONE MEAL

Cincinnati: Demand good; trend strong; supply fair; 50% meat and bone scraps $117, sacked, Cincinnati.
Wichita: Demand strong; supply insufficient; 50% $115, f.o.b. plant; 55%, no quotations, no offerings.
San Francisco: Demand good; supply ample; $1.80 a unit.
Boston: Demand steady; supply adequate; $1.65 a protein unit; converted, 50% $95.
Louisville: Demand good; trend strong; supply normal; $105@110.
New Orleans: Demand good; supply adequate; trend steady; $92.50@95.
Ogden: Supply normal; $99.50 in 100-lb. bags.
Denver: Demand excellent; trend very firm; supply short; 50% $105, trucks lots, bagged; $108, small lots.
Omaha: $120.
New York: Demand good; trend steady; supply tight; 50% $95, 55% $105, bulk; 50% $98, 55% $108, sacked.
Portland: Demand good; supply light; trend higher; $1.65.
St. Paul: Good demand for tight supplies; strong trend; 50% meat and bone meal $115@122.
St. Louis: Demand good; trend higher; supply short; $120.
Buffalo: Demand good; trend stronger; supply ample; 50% meat scraps $105 bulk, $110 sacked.
Los Angeles: Demand good; trend steady; supply light; 50% protein $1.90 a unit.
Kansas City: Demand good; trend strong; supply nearby tight; 50% meat and bone scraps $118, sacked.
Seattle: Demand good; trend firm; supply good; $80, ex-warehouse, 50% protein.
Ft. Worth: Demand good; production light; meat and bone, 50% $110@112, f.o.b. or delivered Ft. Worth.
Chicago: Demand fair; supply adequate; 50% protein $105@112.50.

MILLFEED

Minneapolis: Rather inactive market made supplies about equal to demand; price still strong; but weaker undertone noted; bran $49.50@50, standard midds. $49@51, red dog $52@53.
Kansas City: Demand good, especially for sacked feeds; trend steady to weaker on bulk feeds; supply fairly tight; bran $45.50@46.25, shorts $44@44.75, sacked; bran $42@42.75, shorts and middlings $43.25@44, bulk.
Wichita: Demand good; supply sufficient; basis Kansas City: bran $46.25@46.75, shorts $45.25@45.75; bran declined 50¢ and shorts $1, compared with the preceding week.
Ft. Worth: Demand fair; offerings light; carlots, burlaps, prompt, bran $54.50; gray shorts $53; bulk middlings $51, delivered Texas common points; unchanged on bran and $1 lower on shorts and $1@1.50 lower on middlings compared with previous week.
Chicago: The millfeed market was slower during the week ending Dec. 30 as the demand was much easier during the period. Quotations: bran $52.50, standard midds. $52.50, flour midds. $54.50, red dog $55.
St. Louis: Demand good; trend lower; supply limited; bran $50.50@51, shorts $49@49.50, sacked; bran $47@47.50, shorts $48@48.50, middlings $48@48.50, bulk.
Cincinnati: Demand fair; trend steady; supply adequate; bran $50.50; middlings $53.50.
Omaha: Demand fair; supply plentiful; sacked bran $47; sacked gray shorts $47; bulk standard midds. $46, all Omaha basis.
Boston: Demand good; supply short; bran $63, nominal; middlings $64, nominal.
Buffalo: Buying was quiet last week and lack of demand created a spot supply situation. Country trade came into the market first but medium and large mixers held to the sidelines and indulged in some switching of substitutes. Bran ended off $2, middlings were down $2.50 and red dog declined $3. Quotations Dec. 30: bran $51@51.50, standard midds. $52@52.50, red dog $55@56.50. The bulk differential on both bran and middlings started the week at $5, dropped to $4.50 and then widened out to $6.
New York: Demand fair; trend lower; supply good; bran $58.50@59.50; standard midds. $59.50@60.50.
Philadelphia: Trend very unsettled; bran $64; standard midds. $65; red dog $68.
New Orleans: Demand good; supply light; trend strong; bran $58.25@59; shorts $58@58.75.
Memphis: Demand fair; trend steady; supply adequate; wheat bran $54.50, gray shorts $54, standard midds. $54.
Louisville: Demand fair; trend weak; supply ample; bran $57.60; mixed feed $57.60; shorts $58.10; middlings $60.80.
Denver: Demand good; trend strong; supply limited; shorts $46.75, bran $46.75, mill run $46.75.
Seattle: Demand good; trend firm; supply fair; $45, delivered common transit points, carlots.

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Kansas City, St. Louis, Chicago, Buffalo, Omaha, Toledo, Columbus, Fort Worth, Portland, Boston, Galveston, Enid, Minneapolis, Norfolk, San Francisco, Nashville, Louisville, Memphis, Houston

Portland: Demand good; trend firm; supply limited; mill run $41, middlings $49.

Ogden: Supply average; to Utah and Idaho: red bran and mill run $44, middlings $49; to Denver: red bran and mill run $51, middlings $56; to California: red bran and mill run $51.50, middlings $56.50, f.o.b. San Francisco and Los Angeles.

San Francisco: Demand good; supply tight; millfeed $54; red bran $62.50.

Los Angeles: Demand good; trend steady; supply light; standard mill run $50@52; red bran $60@62.

MINERAL FEED

Wichita: Demand good; supply insufficient; all-purpose with iodine, 50-lb. blocks $95, 100-lb. bags $90, f.o.b. plant.

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Ogden: Supply normal; $113 in 50-lb. blocks; $103, granular, 50-lb. bags.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $55, ex-warehouse.

Ft. Worth: Demand improved; supply light; all-purpose granules $89, block $94; mineral phosphorus 6% granules $105, block $110; cattle-sheep mineral 7% phosphorus granules $99, block $103; hog mineral phosphorus 3¼% granules $38; phosphorus 2% $78 (all in 50-lb. paper bags).

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Denver: Demand good; trend steady; supply ample; $155.

MOLASSES

Cincinnati: Demand fair; trend steady; supply adequate; 13¢ gal., New Orleans.

San Francisco: Demand and supply good; $23, f.o.b. cars, Richmond, Cal.

Boston: Demand good; supply ample; 16½¢ gal. in tank cars.

Louisville: Demand fair; trend stronger; supply normal; 13¢ gal., car lots in tankers, f.o.b. Gulf ports.

Memphis: Demand good; trend upward; supply adequate; blackstrap 13¢ gal., tank car, f.o.b. New Orleans, and $29.50 ton delivered Memphis, truck.

Denver: Demand fair; trend steady; supply ample; 13¢ gal., New Orleans; $22.23 ton.

Kansas City: Demand fair; trend steady; supply adequate; 13@13⅛¢ gal., tank car, New Orleans.

Buffalo: Demand and supply good; trend steady; 16⅛¢ gal., f.o.b. Albany.

New York: Demand fair; trend steady; supply good; blackstrap 16¢ gal., tank cars, tank wagons, f.o.b. New York.

Ft. Worth: Demand good; supply sufficient; blackstrap 13¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $29 ton, seller's market price on date of shipment.

Los Angeles: Demand good; trend steady; supply ample; $23 bulk, f.o.b. tank cars; $23.25 bulk, f.o.b. tank trucks.

NIACIN

New York: Trend steady; $8 kilo, 10-kilo lots; $8.20 kilo, 5- and 2½-kilo lots; $8.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Cincinnati: Demand fair; trend steady; supply adequate; reground oats $20.50; pulverized white oats $49; rolled oats $83@86.

Memphis: Demand fair; trend steady; supply adequate; 3½% protein, reground oat feed $27.

Louisville: Demand fair; trend slightly stronger; supply ample; reground $27.30, rolled $84.80, feeding $78.80, pulverized $52.80, crimped $67.30.

Boston: Demand and supply steady; white pulverized $57.50; reground oat feed $23.50.

Philadelphia: Trend steady; pulverized white $55; Canadian oat feed $36.50; domestic $30.50.

Minneapolis: Demand off; feeding rolled $78; feeding oatmeal $68.50; crimped $55; pulverized $48.50; reground $23.

Los Angeles: Demand fair; trend steady; supply adequate; pulverized, local production $64.

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NEW ENGLAND BY-PRODUCTS CORP.
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Chicago: Demand fair; supply scarce; reground oat feed $21@21.50; fine ground feeding oatmeal $70; feeding rolled oats $79@80.

Ft. Worth: Demand fair; offerings light for nearby delivery; oat millfeed $48.70; reground oat millfeed 8% protein, sacked $30.50.

OYSTER SHELL

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Louisville: Demand good; trend steady; supply ample; in 80-lb. paper $22.85, in 50-lb. paper $23.10, in 25-lb. paper $25.35.

Boston: Demand and supply steady; $25 in paper.

Cincinnati: Demand fair; trend steady; supply adequate; $23.45.

New Orleans: Demand good; trend steady; supply plentiful; $19@19.50.

Portland: Demand slow; trend unchanged; supply ample; western $34, eastern $38.50, granite grits $26, shell flour $24.

Los Angeles: Demand fair; trend steady; supply adequate; $14.80.

PEANUT OIL MEAL

Atlanta: Demand good; trend steady; supply fair; $62.50, f.o.b. Georgia producing mills.

PEAT MOSS

San Francisco: Demand and supply fair; $3.65 bale.

Boston: Demand and supply steady; $3.15 bale in carlots.

Philadelphia: Demand anld supply light; trend steady; $2.90 bale, f.o.b. pier.

Portland: Demand slow; supply ample; trend unchanged; $3.25 bale.

Los Angeles: Demand fair; trend steady; supply adequate; Canadian, 6.1 cu. ft. bales $3.75.

Chicago: Demand fair; supply short; $3.60 @3.70, standard 7½ cu. ft. bale.

POTASSIUM IODIDE, U.S.P.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures, 250-lb. drums $1.36; 200 lb. in 100-lb. drums $1.35; 100-lb. drums $1.38; 25-lb. drums $1.41, f.o.b. Cincinnati.

Chittenango, N.Y.: Demand good; supply adequate; 99% KI stabilized with calcium stearate, 200 lb. in 100-lb. cartons $1.35; 100-lb. cartons $1.36; freight prepaid to destination.

POULTRY BY-PRODUCTS

Boston: Demand fair; supply tight; $100.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots in 3.36 to 16 gm./lb. mixtures, 3¢ in ton lots or more; freight prepaid or paid to destination.

SCREENINGS

Cincinnati: Demand fair; trend steady; supply adequate; malt sprouts $50; malt house $32, sacked, Cincinnati.

RIBOFLAVIN

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

RICE BY-PRODUCTS

San Francisco: Demand good; supply ample; bran $45; polished $49.

Ft. Worth: Demand good for export, slow for domestic at present price; offerings light; carlots, rice bran $42@43, nominal, f.o.b. south Texas rice mills; hulls $2, f.o.b. mills.

Los Angeles: Demand and trend steady; supply limited; bran, California production, high fat content $57.

SCREENINGS

Minneapolis: Shortage of material now termed "acute"; lights $10@20; mediums $21@30; heavies $31@40; Canadian bulk $30; Canadian ground $38; flaxseed screenings $40; oil type flaxseed screenings $45, basis 15%.

Buffalo: Demand and supply fair; trend steady to higher; ground, sacked $37.50, New York; unground, bulk $31, New York.

Chicago: Demand fair; supply adequate; ground grain screenings $35; Canadian, bulk $28.

Ft. Worth: Demand almost nil; supply sufficient; ground $28.

SORGHUMS

Los Angeles: Demand steady; trend weaker; supply adequate; milo $2.42½ cwt.

Ft. Worth: Demand fair; supply sufficient; carlots, bulk, No. 2 yellow milo $2.24@2.26, delivered Texas common points.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.58@25.
Memphis: $22.20@23.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.37.

SOYBEAN OIL MEAL

San Francisco: Demand good; supply tight; $95.

Boston: Demand good; supply adequate; 44% $59@60; 50% $66@67, both f.o.b. bulk, Decatur.

Louisville: Demand slow; trend easy; supply fair; $73.70.

Cincinnati: Demand poor; trend steady; supply adequate; $64, bulk, Decatur.

Memphis: Demand moderate; trend lower; supply limited; prime 44% solvent $67.

New Orleans: Demand fair; trend steady; supply adequate; $69.50@70.

Wichita: Demand good; supply insufficient; 44% $78, 50% $86, f.o.b. Wichita.

Philadelphia: Trend unsettled; 44% $60.50 bulk, Decatur.

Ogden: Supply average; $81@86.

Denver: Demand poor; trend steady; supply fair; $88.50, nominal.

Omaha: Demand fair; supply plentiful; 44% $58.50, bulk, delivered Omaha.

Atlanta: Demand fair; trend steady to weaker; supply ample; $76, sacked, Atlanta.

St. Louis: Demand fair; trend down; supply limited; 44% $72.

Kansas City: Demand fairly good; trend steady; supply tight; meal for Kansas City and western shipment $63@64, bulk, Decatur, with scattered first half of January shipment quoted at $61; unrestricted $64.

Seattle: Demand fair; trend strong; supply ample; $99, carlots.

Portland: Demand slow; trend higher; supply light; $61, f.o.b. Decatur.

Minneapolis: Good demand for thin supplies; price off slightly at $60 bulk, Decatur, for 44% for Minnesota shipment and $70 for 50% meal; price last half January for 44% quoted at $67, bulk, Decatur.

New Orleans: Demand fair; trend steady; supply adequate; $69.50@70.

Los Angeles: Demand good; trend unchanged; supply scarce; $91.50@92.50.

Ft. Worth: Demand good; supply sufficient; carlots 44% $82@85, January, depending on origin; 50% $92.50 week Jan. 5; $91 week Jan. 12; $89 last half January; $87.50 February-March; truck meal, 44% $76.

Chicago: The market for soybean oil meal was strong during the week ending Dec. 30. Supplies are somewhat harder to get although adequate for the demand. Quotations: 44% protein soybean oil meal, bulk, unrestricted, basis Decatur $62; eastern restricted $60; 50% bulk, unrestricted, basis Decatur $71; eastern restricted $68.

TANKAGE

Louisville: Demand good; trend very strong; supply normal; $110@115.

Wichita: Demand strong; supply insufficient; 60% $120, f.o.b. plant.

Cincinnati: Demand excellent; trend strong; supply short; 60% digester $117.50.

New Orleans: Demand fair; trend steady; supply ample; $116@117.

St. Paul: Good demand for rather thin supplies; strong trend; 60% digester $113 @117.

Kansas City: Demand good; trend strong; supply very tight; 60% digester $121@123, sacked.

Omaha: $125, delivered Omaha.

St. Louis: Demand good; trend higher; supply short; $120.

Ft. Worth: Demand fair; supply extremely scarce; 60% digester $118, nominal, f.o.b. Ft. Worth.

Chicago: Demand fair; supply ample; 60% protein $107.50@115.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; supply limited; 7⅛¢ lb., f.o.b. north Texas area.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55, freight allowed to destination.

New York: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

New Orleans: Demand and supply fair; trend steady; $92@95.

Buffalo: Demand and supply fair; trend steady; commercial grade $77, sacked, f.o.b. Buffalo.

Peanut Hulls Found To Be Satisfactory As Cattle Roughage

BLACKSBURG, VA.—Scientists at Virginia Agricultural Experiment Station here have reported that peanut hulls can be used profitably as roughage in rations for beef cattle.

The researchers said the beef cattle producer may find in peanut hulls a new and inexpensive source of feed and the peanut processors may find a source of income for a formerly troublesome by-product.

Recent work at other experiment stations on the use of fibrous materials such as corn cobs, straw and cottonseed hulls suggested to Virginia workers that peanut hulls might also be used as cattle feed.

They reported that peanut hulls similar to those used in the tests, when properly supplemented, are a satisfactory roughage for beef cattle if they constitute not more than 60% of the ration.

For yearling cattle they found that the addition of molasses to a fattening ration containing 40% peanut hulls increased food intake slightly and showed little difference in average daily gains.

In a test with weanling heifer calves, peanut hulls satisfactorily replaced hay in the ration. The calves being fed peanut hulls ate more than those being fed hay, but their carcass grades were lower. Average daily gains were 2.25 lb., 2.16 lb. and 2.06 lb. for the lots fed rations containing peanut vine hay, peanut hulls and mixed hay, respectively. Although there were slight differences in feed intake, average daily gains, carcass grades and dressing percentages, the differences are believed to be due to chance, they said.

A ration containing 60% peanut hulls was reported to be excellent for wintering weanling steer calves, but the calves consumed more concentrates than those being fed peanut vine hay, with or without access to rye and native grass pasture. The scientists said that this phase of the test also pointed up the value of winter pasture. Winter pasture from cover crops and permanent grasses, when it produces enough forage for grazing, can replace about one half the roughage requirement, they said.

The tests were conducted at the Tidewater Research Station of Virginia Polytechnic Institute.

William S. Edwards

ASSISTANT SALES MANAGER — William S. (Bill) Edwards has been promoted to assistant sales manager for Feed Products, Inc., Denver, announced W. H. Keiser, president of the company. Mr. Edwards will be in charge of sales and service in southern and western Colorado, northern New Mexico and southwestern Kansas. He is a graduate of Oklahoma A&M College with a degree in animal husbandry. Before joining Feed Products in July he was Rocky Mountain field representative for Chas. Pfizer & Co., Inc. Feed Products is the Rocky Mountain distributor for products of Pfizer, Cudahy, Hess & Clark, Merck & Co., Abbott Laboratories, American Scientific Laboratories and others. The company also manufactures and distributes several products nationally, including Tasty-Pheen, a non-toxic worming preparation for livestock.

Cyanamid Awards Poultry Studies Grant

NEW YORK—A grant-in-aid from American Cyanamid Co. has been accepted by the University of Delaware to investigate a number of troublesome poultry diseases in the Delmarva area.

According to Dr. Morris S. Cover, associate professor and poultry pathologist of the University's agricultural experiment station who will supervise the investigations, three principal projects are planned. One will involve the use of new chemotherapeutic agents to determine their ability to control CRD (chronic respiratory disease).

The influence which certain chemical or dietary alterations bear on stepping up the effectivness of Aureomycin chlortetracycline and other antibiotics used to treat poultry diseases will also undergo a series of tests at Delaware.

Dr. Cover said he also hopes to establish whether freezing of serum used in serological tests for PPLO (pleuro-pneumonia-like organisms) may produce false positive reactions. There is some evidence that this may occur, he pointed out.

FEED STORE ROBBED

UNIONVILLE, VA. — Burglars broke into Talley's Feed Service during the night recently, ripped off the door of the safe and escaped with about $700 in cash and $1,500 in checks, according to a report from the Orange County sheriff's office.

Herbert A. Greenberg

H. A. Greenberg Heads K. C. Bag Companies

KANSAS CITY — Herbert A. Greenberg, president of Allied Paper Bag Co., North Kansas City, has been elected president of these bag companies: Pioneer Bag Co. of Kansas City, Inc., Kansas City, Kansas; Pioneer Mesh Bags, Inc., North Kansas City, and Pioneer Used Bag Co., North Kansas City.

Mr. Greenberg succeeds Irven E. Linscomb, who is entering semi-retirement. Mr. Linscomb will continue his attentions to his Pioneer Cattle Co. and to his extensive ranching operations in St. Clair and Clay County, Mo.

Mr. Greenberg is a graduate of the University of Missouri. He came to Kansas City from St. Louis in 1951 and, with Elden Brown, vice president of production, founded Allied Paper Bag.

The plant occupied by Pioneer Bag Co. of Kansas City was purchased from Fulton Bag Co. in 1957. This plant manufactures a complete line of burlap, cotton, vegetable and specialty bags for the flour milling, livestock feed and vegetable growing industries.

Pioneer Used Bag collects, cleans, sanitizes, repairs and re-distributes used burlap, cotton, paper and mesh bags. This company also deals in used bags, which it buys and sells in the national market.

Each of the companies operates its own trucking units.

NORTHWEST

(Continued from page 1)

Assn.; Dr. Henry H. Bakken, agricultural economist at the University of Wisconsin, and Eldon Roddis, Roddis Feed Co., Rochester, Minn.

Also on the program Jan. 12 is a skit by Mr. Roddis; Wendell Lenton, Stewartville, Minn., president of the association, and John Manahan, Chatfield, Minn., feed man.

Ladies attending the convention will be guests at a breakfast the morning of Jan. 12. The Minneapolis Retail Assn. will have a lady present to give shopping advice.

Four cash drawings are also planned. One of $50 will be held at the ladies' breakfast and three others of $100 each are to be held during the convention.

INDIANA

(Continued from page 1)

nical services for Dawe's Laboratories, Inc., Chicago, will present his viewpoints on cooperation between feed men and veterinarians.

Prof. William L. Farris of the Purdue University Extension Service, will give a talk on "Extent of Grain Bank Operations in Indiana"; Philip H. Willkie, banker and attorney from Rushville, Ind., will discuss the financial requirements of grain and retail feed dealers, and Dr. Lowell S. Hardin, head of the agricultural economics department at Purdue, will present an economic outlook for the feed and grain business.

In announcing the program, Fred K. Sale, executive secretary of the association, urged members to make room reservations early because the state legislature will be in session, reducing the number of available rooms. He also mentioned that a few exhibit rooms are still available, and that a program has been planned for wives of those attending.

NORTH CAROLINA

(Continued from page 7)

Fats containing from 14 to 90% free fatty acids were used in the Texas studies at levels of 2½ and 5%. No differences could be detected with regard to production, mortality or conversion from fats containing varying levels of free fatty acids up to 90%.

Fatty Liver Disease: A standard treatment for this condition which has been used in the field consists of supplementing the feed currently used with 1,000 gm. choline chloride, 10,000 I.U. vitamin E and 12 mg. vitamin B_{12} per ton of all-mash feed. Three weeks were required in one flock for production to increase from 45 to 65%. It appears, Dr. Couch said, that it would be better to increase the choline level to at least 600 gm. added choline chloride per ton of finished feed, add 5,000 I.U. vitamin E and make sure the formula has at least 12 mg. B_{12} per ton. The condition has not been reported where the higher level of vitamins in question has been used consistently.

The fatty liver condition has been reported under floor conditions as well as in caged layers in all areas where energy content ranged from 900 to 1,100 Calories per pound.

Vitamins: Dr. Couch said that higher vitamin fortification is needed in view of higher-producing birds, higher energy feeds and the elimination of certain ingredients from high-energy type formulas. He said that, for these reasons, he now recommends the following levels of vitamins, antibiotics, arsonic acids and antioxidants on a per ton basis: Riboflavin, 4 gm.; calcium pantothenate, 8-10 gm.; niacin, 25-30 gm.; B_{12}, 12 mg.; vitamin A, 5,000,000 I.U.; vitamin D_3, 1,500,000 I.C.U.; 20 to 25 gm. of an antibiotic or combination of antibiotics; an arsonic acid (45 gm. 3-nitro or 90 gm. arsanilic acid), and 5,000-10,000 I.U. vitamin E.

"Antibiotic and arsonic acid usage in laying feeds continues to be a disputable question," Dr. Couch said.

"It is being continuously reported that antibiotics no longer have an effect on growth and feed conversion in broilers or starter chicks. Under no circumstances would the speaker recommend that antibiotics be removed from feeds. It is believed that the environment may have become somewhat sterilized, and under these conditions antibiotics even at the 50 gm. level may fail to produce a growth response.

"The point in question in this instance is that addition of antibiotics and arsonic acids will produce the same response with laying birds as with growing birds if the disease level happens to be present in a high enough concentration.

"Dr. J. E. Savage of the University of Missouri has conducted extensive tests on antibiotics in laying feeds, and he reported verbally recently an increase in egg production of 5-6%. This agrees with the increase consistently reported by the Texas station.

"It may be noted that the vitamin levels above include addition of choline chloride and vitamin E which, according to field reports, will prevent occurrence of the fatty liver syndrome."

Minerals. It is necessary to add calcium, phosphorus, manganese and salt to laying mashes. In view of recent reports on the importance of zinc in poultry nutrition, said Dr. Couch, it is also suggested that a source of zinc be added, although experimental results under field conditions to support this addition are not available at present.

"It is the recommendation of the speaker that the calcium necessary for high egg production be included in the formula," Dr. Couch said. "Calcium levels should be in the range of 2.25-2.50%. A higher level is favored for high-producing hens.

"Phosphorus supplements available are defluorinated phosphate, dicalcium phosphate, rock phosphate, bone meal and soft phosphate. Recent experimental results made available to the speaker indicate that any one of these sources may be used in laying mashes. Fluorine content should be taken into account, although the fluorine tolerance of the hen is high (.045%). One should also consider the cost per unit of phosphorus. The phosphorus level should be .75 to .90%. The nutritionist should take into account the phosphorus content of such protein supplements as meat and bone meal and fish meal when evaluating them.

"Manganese sulphate is recommended at a level of ½ lb. of salt per ton. An addition of ¾ lb. of zinc sulphate or equivalent per ton is recommended.

"Supplemental calcium has not been used at the Texas station for five years. Good egg production, feed conversion and low mortality have resulted. No difference could be ascertained in studies conducted five years ago between hens fed the entire allotment of calcium in the formula and those fed a portion of calcium in the form of supplemental oyster shell."

Unidentified Factors: It has often been reported, and data on limited tests at Texas show, that addition of UGF sources to a laying mash had no effect on egg production or feed conversion, Dr. Couch noted. However, he said, the disease level is much higher in congested poultry areas under commercial conditions, thus placing greater stress on the bird and requiring better formulation. He said he recommends the following for consideration in meeting unknown factor requirements of laying birds maintained in large numbers under commercial conditions: The "alfalfa factor" can be obtained from use of dehydrated alfalfa at levels of 50 to 100 lb. per ton; the higher protein alfalfa products should be used. The "whey factor" may be obtained from dried whey, distillers dried solubles, dried brewers yeast, dried milk and possibly also in fish factor sources. It is wise to use 50 to 60 lb. per ton of a whey factor source or combinations. The "fish factor" may be found in condensed fish solubles, fish meal, meat and bone meal and the most concentrated source of the factor is probably some of antibiotic fermentation residues or primary fermentation products. Good fresh fish meal protected with an antioxidant is an excellent source and if used at the 100 lb. per ton level will supply an adequate amount of the factor. Condensed fish solubles may be used at level of 50 lb. per ton. From ¼ to ½% of a good antibiotic fermentation product is sufficient to meet requirements.

Caged Layer Fatigue: Dr. Couch said he believes that this condition is caused by a nutritional deficiency. Biological reports to the speaker have shown that the bone ash and calcium and phosphorus blood levels of the affected birds are normal. If the birds are moved from cages and placed on litter or if left in cages and hand fed, production will decrease and finally cease and the hens will recover. This, said Dr. Couch, simply means that the hen is laying at a higher rate than the nutrients in the formula will supply or at a higher rate than the body can metabolize and assimilate nutrients necessary for such a high rate of laying and feed conversion. Field reports indicate the condition has also been observed in floor birds.

Systems of Feeding: Dr. Couch said he is a strong advocate of all-mash feeds since the birds always receive a balanced formula.

Feeding Broiler Strain Laying Hens: Dr. Couch said the answer to the problem of excessive fat has been provided by Dr. E. P. Singsen of Connecticut, who showed that controlled intake of a high energy diet will produce good results. Also, a low energy formula can be fed on a free choice basis.

IMPORTANCE OF AMINO ACID BALANCE IN HIGH EFFICIENCY BROILER FORMULAS—Dr. G. L. Romoser of the Monsanto Chemical Co., St. Louis, in discussing amino acid balance, first pointed out recent reports stressing energy-protein balance in broiler formulas.

Through dietary ingredient manipulations, experimental feeds containing levels of fat as high as 50% can now be utilized by the chick with phenomenal results. Certain commercial formulas now in use contain at least 6% added fat.

High quality fats, said Dr. Romoser, are the key to future progress in formulating feeds containing even higher energy levels than now in use. Most of the high energy products now available are divided into two categories — tallows, which have a melting point of 40° C. or higher, and greases, with a melting point less than 40° C. Most research data seem to correlate the melting point of a given fat with its feeding value. Fats having a high melting point, usually hydrogenated, are not completely metabolized by the broiler chicken. However, unmodified tallows and greases having lower melting points are utilized to about 80-90%, while oils, normally liquid, are utilized to the extent of 95-100%.

Dr. Romoser went on to point out that it is necessary with the newer knowledge of nutrient balance to look upon protein as a mixture of polymers of individual amino acids. Some crude proteins are limiting in certain essential amino acids. But through the blending of two or more crude proteins and supplementing them with crystalline amino acids, they become highly effective in supporting chick growth.

Based on earlier work with chicks, it was indicated that as the percentage of crude protein in a given formula was increased, the amino acid requirement of the chick expressed as a per cent of the crude protein in the ration decreased. However, since establishment of the energy-methionine relationship, we must now conclude that the amino acid requirement as a per cent of crude protein in a given formula will be dependent upon the energy content of the feed as well as the protein content. An increase in the calorie-protein ratio means an increase in an amino acid as a percent of dietary protein.

Dr. Romoser noted that there are two ways in which amino acid balance may be attained: (1) Increasing the level of crude protein; (2) addition of crystalline amino acids. If the first alternate is chosen, the total caloric content of the ration will be reduced and the problem of excess amino acids will become more critical. Alternate 2 permits the formulation of a properly balanced formula with no amino acid excesses.

Work in the Monsanto laboratories, he said, has shown that rations containing relatively low levels of crude protein (21%) and higher levels of productive energy (1260 Cals./lb.) can be supplemented and made as effective as rations containing 24-28% crude protein. The commercial practicability of such use of amino acids is at present restricted because of the cost of some amino acids. In the future, it may be possible to use higher levels of energy, lower levels

CONTEST WINNER — Cecil Bowie (left), West Liberty, Iowa, receives a $1,000 bill from P. J. Geerlings, president of Geerlings' Feed Mills, Inc., Waterloo, Iowa. The award, top prize in the recently completed Geerlings Gold Star sales contest, was presented at the company's Christmas party given for all district men, their wives and company employees. Ralph Hatcher, Anamosa, Iowa, received $500 as the second-place winner, and Joe Henchal, Cedar Falls, Iowa, received $250 for placing third. The company launched a new sales contest in December, with prizes being a mink coat, mink stole and cashmere coat for the wives of the three top winners, plus cash awards for the district men. Winners of this contest will be announced at the June sales meeting of the firm.

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of crude protein and higher levels of amino acid supplementation.

Dr. Romoser noted that Monsanto has reported on the "growth spurt" concept. It was indicated that a partial restriction of energy during the starting period, followed by a high energy ration containing the same level of crude protein as the starting ration, resulted in improved performance of broilers. At the end of eight weeks, broilers on this type dietary regimen weighed more and converted feed more efficiently than control groups.

RUMINATION IN YOUNG CALVES AND ITS EFFECT ON FEED REQUIREMENTS—Dr. E. W. Swanson of the department of dairying at the University of Tennessee told of work in which the normal development of rumination in 26 calves fed skim milk until 6 to 8 weeks of age plus calf starter, hay and water from three days of age was determined by bi-weekly 24-hour observations. Each calf was observed first at about 1 week of age. Rumination had begun in 18 calves (69%) at 1 to 2 weeks of age. By the 3 to 4-week age, 25 calves (96%) were ruminating, and the next observation period all calves were ruminating. At the first observation (1 to 2 weeks) the average time per day spent ruminating was only 47 minutes. This increased to more than 3 hours two weeks later and to 4.5 hours by 5 to 6 weeks of age. Thereafter rumination time increased in proportion to the increased dry matter consumption of the calves. Jerseys spent slightly more time than Holsteins in ruminating equal amounts of feed.

Dissection of stomachs of 17 calves from 12 to 22 days of age was made to observe the efficiency of rumination at early ages and its effect on stomach contents. Eleven (65%) of these calves had rumen contents which indicated effective rumination along with characteristic rumen fermentation. The weight of rumen contents in ruminating calves was greater than in non-ruminating calves, but the reverse was true of abomasum contents. Rumination appears to aid in the channeling of greater amounts of feed through the rumen rather than directly into the abomasum.

The development of the rumen and ruminating activity is accompanied by a depression of blood sugar until 6 to 8 weeks, after which it remains constant. This change in metabolism is characteristic of mature cattle, indicating that the normally ruminating calf at that age can handle its feed in about the same manner as a mature cow.

Dr. Swanson said that the early development of the rumen can be enhanced by feeding ample, highly palatable hay and concentrates to calves, and by limiting the milk fed to a moderate amount, not over 10% of body weight, to encourage consumption of rough feed. Sickness and diarrhea were observed to depress rumination, indicating that special attention should be given to the type of feed for the sick calf.

"Early rumen development in the calf is a logical explanation of failure to demonstrate benefits from complex calf starters over simple formulas," said Dr. Swanson. "This information may result in large economies in calf raising."

NORMAL VS. SUBNORMAL OR SUPERNORMAL FEEDING FOR DAIRY HEIFERS—Dr. E. W. Swanson described research to determine the effects of heavy feeding, and also subnormal feeding, of heifers.

For one thing, he noted, experiments indicate that no milk production advantage is to be gained by very heavy feeding of heifers during growth, and that a lactation deficiency may result from such a practice in some heifers.

In another study, it was indicated that subnormal feeding during growth does inhibit lactation during the first part of the first lactation.

To determine the effects of heavy feeding, eight pairs of identical twin heifers, secured at 2 to 12 months of age, were separated at 4 months of age, or upon receipt, and thereafter one of each pair was fed in a normal, practical manner. This included concentrate feed to a maximum of 4 lb. daily up to 10 to 12 months. After that, one of each pair fed "normally" received only hay and pasture until parturition. Their mates received in addition to hay and pasture all of the concentrates they would eat. Amount of feed consumed varied widely among the fat heifers. Daily average of four fat heifers fed individually for 90 weeks was 9.58 lb. concentrate and 5.26 lb. alfalfa hay. From 28 through 87 weeks, estimated TDN consumed by the fat heifers was 153.5% of that by the "normals." The normal heifers consumed ad lib. an average of 12.75 lb. alfalfa hay daily from 68 to 87 weeks—less than recommended allowances. After this age they were pastured or group fed, but they continued lean in appearance. After calving, the heifers were stabled together and fed alike within pairs. Concentrates were fed to both twins on the basis of milk production of the higher producer and roughage was fed ad lib.

At 24 months, the normal heifers averaged 683 lb. and the fattened heifers 899 lb., or 93 and 123% of standard Jersey weights.

Six of the seven milked pairs calved at comparable ages. Milk yields for these and for the first 10 weeks of the seventh pair averaged 16 lb. per cow per day for the fat twins and 17.4 lb. for the normal ones. In only one pair did the fat heifer exceed the production of its lean mate in the first lactation. The normal heifers milked an average of 20 days longer in the first lactation and produced 4,005 lb. FCM, compared to 3,397 lb. by the fat heifers. Average lactation curves of six pairs for 20 weeks were markedly different. Comparable second lactations of four of the pairs have shown the fat heifers were still inferior to their mates.

Udders taken from four pairs of the heifers near the end of their second lactations revealed incomplete development of the lobule-alveolar system in three of the fat heifers. In addition to this defect, the weight changes during the first lactation indicated that a difference in metabolism occurred. After 9 months lactation, the fat heifers, although giving less milk than their mates, had not regained to their pre-partum weight, whereas the normal heifers averaged 144 lb. heavier than their pre-partum weight.

Dr. Swanson went on to describe the work with twin calves to determine the effects of underfeeding during growth upon lactation. As noted above, the study indicated that subnormal feeding does inhibit lactation during the first part of the first lactation.

SWINE MANAGEMENT AND FEEDING PROGRAMS—Dr. A. J. Clawson of North Carolina State noted that a successful market hog producer must consider and scrutinize each component part that contributes to over-all performance. The following factors should be considered:

1. Number of healthy pigs farrowed. The commercial producer can establish and maintain good litter size by following a program of systematic cross breeding. This program requires (a) use of good purebred boars and (b) use of crossbred sows produced on the farm.

2. Number of pigs weaned. Important things here are to feed a nutritionally adequate ration to the sow during gestation and lactation and to control diseases that cause baby pig scours.

3. Weight of pigs weaned. Strict sanitation and control of managerial details, along with a good feeding program, will do most to make baby pigs grow. Ways are now available for prevention of baby pig anemia.

4. Rate of gain, post-weaning. Research has shown that the fast-gaining pigs are usually the most efficient in regard to feed conversion.

5. Feed efficiency. Efficiency of conversion of feed to meat is a heritable trait, and selection of breeding stock for rate of gain and/or feed efficiency has been shown to improve this trait. Management can, and usually does, play a larger role in determining efficiency than does breeding.

6. Carcass quality. This is also an important factor contributing to overall efficiency of a pork production enterprise. In addition to the premium that can be realized, it also costs less to produce this type.

PURIFIED DIETS FOR RUMINANTS—Dr. Harold A. Ramsey summarized research on purified diets for ruminants conducted at North Carolina State College during the past several years. He noted that purified diets are a very useful tool in research and that animal performance can be related closely to the chemical composition of the diet.

Early attempts to develop a satisfactory purified diet for ruminants were unsuccessful. Therefore, research was initiated at the North Carolina station to devise a purified diet that would permit normal growth and development of young ruminant animals through maturity and to study the metabolism of various energy-yielding constituents in the diet.

Dr. Ramsey went on to discuss the results of tests with certain variables in different purified diets.

In this connection, he noted that the results of the research on purified diets indicate that roughage is not necessarily an essential constituent of the ruminant diet.

"Oh, I got an order all right. He ordered me out and told me never to come back."

Feed Grains Inspected For Weed Seeds

SACRAMENTO, CAL.—Movement of feed grains from fields to feed yards and mills was accomplished for the first time in 1958 in California under the supervision of plant quarantine inspectors seeking weed seeds.

"The trade as a whole has adapted to the new regulations very smoothly," said A. P. Messergerm, chief of the bureau of plant quarantine, California Department of Agriculture. "Some individuals have been hurt, but there has been no significant adverse effect on the feed grain industry as a whole."

The California program is designed to channel movement of weed-infested grain to mills or other outlets where it can be used without danger of spreading weeds. Most of the mills which process feed grain are now geared to handle contaminated material.

The grain shipper is permitted to choose between inspection at origin or inspection at destination, and receiving counties are not required to honor certificates of cleanliness issued at origin.

Several of the big grain importing counties, San Joaquin, Stanislaus and Fresno, refuse to accept them because their standards are higher than the state's. Inspection is mandatory unless the grain is destined for an approved outlet. Most grain from northern California, where infestations of yellow star thistle and Johnson grass are found, go to approved outlets.

The new clean grain program has resulted in several forward steps:

1. Significant infestations of weeds, some primary noxious, which were unknown before, have been detected.

2. Inspection has been inaugurated of grain shipments into California.

3. A premium price of as much as $2 a ton for certified clean grain which can be used whole or coarsely ground for poultry feed has been offered by some buyers.

Agriculture commissioners are particularly pleased at the latter result. They point out that this provides farmers with an economic incentive to clean up their fields.

MARKETS

(Continued from page 2)

shortly and this may stabilize the market, or even send it lower.

Brewers' grains just about held their own but distillers' grains climbed $1 to $4. Hominy was independently strong of corn and prices rose $1. Alfalfa meal also gained $1 and gluten feed held steady.

Bran and middlings backed down under lack of demand and the inactivity created a spot supply situation.

Running time of formula feed manufacturers averaged 36 hours last week.

Southeast

The feed business was reported to be on the slower side this week. Soybean prices for the week have been practically unchanged. The local corn market is practically unchanged, but barge corn into Chattanooga is off 1¢ bu. The major feed ingredients are practically unchanged from last week, causing feed prices to remain the same.

Ingredient buyers still are of the opinion that the major feed ingredients are still on the high side, and they are continuing to buy only on a hand-to-mouth basis. Protein meals are beginning to back up with some of the processors and this week more offerings were made to the trade. Peanut meal continues to be a good buy, and many cattle feeders are taking advantage of the lower prices. 45% peanut feed meal continues to

be offered at $10 ton under cottonseed meal and soybean meal.

Feed mill running time is reported to be generally steady.

The north Georgia broiler market remains unchanged at 14¢ per lb. f.o.b. the farm, and it is reported that this condition will remain unchanged until after the first of the year. Citrus pulp is beginning to back up at many of the Florida producing plants and, from all indications, we can look for heavier production during the coming weeks. Also, indications are that we will have lower citrus pulp prices.

Central States

Holiday dullness prevailed during the week ending Dec. 30 everywhere apparently but in the feed business, which again chalked up a very good week of sales. Some manufacturers believed that December might prove to be an all-time record month for tonnage, as well as rounding out an outstanding year of business.

Generally all types of feeds were moving well and order backlogs were anywhere from one to three days of running time. It was also believed that spring business might begin a little earlier this year than usual.

Most mills appeared to be running a five-day week and in some cases even on Saturdays. It was thought this situation might continue through the next few weeks, provided the prices of feed ingredients do not continue on an excessive upward climb.

The large number of animals on feed, inventories, and cold weather seemed to be the main factors in the good run of business.

South Central

Formula feed business picked up sharply last week, giving the final week of the year a near record rate of deliveries. Much of the demand resulted from a last minute rush to take advantage of special offers that were due to expire Dec. 31. Judging from the heavy deliveries of these special offer feeds, mixers believe that considerable amounts have gone into stockpiles, probably out on the farms and not in the dealers' warehouses. There is general agreement that there is apt to be a draggy period sometime in January while these stockpiles are being used.

Sales volume for most plants continues to be heaviest in the hog feeds. The cattle feed movement has slowed as most of the larger feeders have either built up a good stock or have favorably priced bookings to cover their needs. Poultry feed sales have not been quite as good as expected. Several mixers call their sales about equal to the year before and not showing the strong gains that their other feeds do.

Most of the mills intend to operate on Saturday to rebuild their warehouse stocks. Prices are expected to be unchanged for the week.

Ohio Valley

Formula feed manufacturers and sales agencies in the Ohio Valley closed out the old year in a continuing burst of activity that gives promise of extending the record volume of business well into the new year. Fortunately, with some moderation this week in the near-zero and lower temperatures that prevailed during most of December, receipts of required ingredients have been in sufficient tonnages to insure steady mill output, and thus keep production schedules from lagging too far behind.

Another favorable factor has been the maintenance of steady retail demand for farm animals, especially hogs and cattle, with receipts during the holiday period barely sufficient for minimum requirements. Area feed manufacturers are quite generally agreed that the present situation is so encouraging for farmers that considerable increases in sizes of flocks and herds can be anticipated during the months ahead.

Area mills are continuing full five-day production schedules with considerable overtime being necessary because of the New Year holiday. All area plants were in production this Friday, and most of them found it necessary to maintain Saturday operations, also.

Mountain States

The past week's formula feed demand has been very strong, and the business has been very good. It is much better than at the same time a year ago.

The feeds that have been getting the most demand have been cattle and sheep feeds for feed lots. Cattle and sheep feeds were both stronger than a year ago and than the previous week.

Most of the feed being purchased by the dealers is for immediate sale rather than for inventory buildup.

Pacific Northwest

Feed ingredient quotations followed a mixed trend during last week's pre-holiday trading period in face of a seasonally slow demand.

Meat and bone meal listings posted the sharpest advance when values jumped $5 ton. Slightly higher quotes were registered by cottonseed meal which advanced as much as $2 ton while whole feed oats values gained as much as $1.50 ton.

Soybean meal prices declined $1 to $2 ton and listings for milo were mostly 50¢ ton lower than those of the previous week.

Livestock and dairy cattle feeders and feed manufacturers limited purchases due to nearness of the year end and most trading was on an inventory basis.

The formula feed movement was fully maintained last week with a heavy usage reported for egg, broiler and turkey breeder mashes. There continued to be a dependable wintertime demand for dairy feeds.

Fed steers prices were strong to 25¢ cwt. higher at north Portland where choice lightweights topped the market at a new recent high of $28.50.

Producer paying prices held unchanged and about steady for ranch eggs, chickens and turkeys with no turkey processing during the week.

INDEX OF ADVERTISERS

The index of advertisers is provided as a service to readers and advertisers. The publisher does not assume any liability for errors or omissions.

Abbott Laboratories .....
Agricon, Inc. .....
Agri-Tech, Inc. 42, 49, 88, 93
Albers Milling Co. .....
Albumina Supply Co. 18
Allied Chemical Corporation, Nitrogen Division 80
Allied Mills, Inc. 88
Altman, Singleton & Co. ....
Amburgo Co., Inc. 16, 69
American Agri. Chemical Co.
American Cyanamid Co. ..22, 23
American Dehydrators Assn...
American Elev. & Grain Div.
American Mill Serv. Co. ... 87
American Poultry & Hatchery Fed. .....
Anderson Box Co. .....
Andersons, The 82
Anderson, V. D., Co. 92
Arbor Acres Farm 39
Archer-Daniels-Midland Co. ..
Arkansas Rice Growers Coop. Assn. .....
Arkell & Smiths .....
Armour & Co. 19
Armstrong, O. B., & Son ... 66
Associated Feed Products ... 91
Aubrey Feed Mills .....

Babcock Poultry Farm, Inc. ..
Bacon, Edward R., Grain Co..
Baker, H. J., & Bro. .....
Baker, J. T., Chem. Co. 66
Barnard & Leas Mfg. Co., Inc. 57
Baroid Division, National Lead Co. .....
Bartlett, C. O., & Snow Co... 80
Barton Salt Co., The .....
Bates Grain Co. .....
Baughman Mfg. Co., Inc...
Baxter, A. E., Engineering Co.
Bayou Molasses Co. .....
Beardstown Mills .....
Bemis Bro. Bag Co. .....
Berg, Paul .....
Bigelow Sales Co. 99
Bingman Lab., Inc. .....
Black, Sivalls & Bryson, Inc...
Blatchford Calf Meal Co. .. 81
Blomfield-Swanson 95
Borden Company 20, 21
Bosworth Commission Co. 66
Bowman Feed Prod., Inc. 65
Brewers Yeast Council, Inc.
Brower Manufacturing Co. .. 29
Brown, Fred G., Pulv. Co. ..
Bruce Milling Co. .....
Burrell, James H., & Co., Inc.
Burrows Equipment Co. 95
Burrus Feed Mills .....
Butler Chemical Co. .....
Butler Mfg. Co. .....

C-K Processing Co. .....
Calcium Carbonate Co. .....
California Pellet Mill Co. ... 84
Capie, A. B., Co. .....
Carey Grain Corp. .....
Cargill, Inc. 52
Carson Food Co. .....
Champion Portable Mill Co...
Chantland Mfg. Co. .....
Chase Bag Co. 16
Checkerboard Grain Co. ..
Citrus Processors Assn. 90
Cleveland Vibrator Co., The..
Clinton Corn Processing Co... 46
Clofine, Herbert K. .....
Colby Milling, Inc. .....
Collier Livestock-Feader Co... 33
Colonial Poultry Farms .....
Columbia Phosphate Co. 48
Columbia Quarry Co. 57
Columbian Steel Tank Co. ....
Commercial Solvents Corp. .. 17
Consolidated Blenders, Inc. .. 99
Consumers Soybean Mills ....
Continental Grain Co. 99
Corn Products Sales Co. ....
Coronet Phosphate Co. .....
Cottingham & Butler Ins. Service, Inc. .....
Crete Mills .....
Cromwell Paper Co. .....
Crown Zellerbach Corp. ....
Czarnikow Rionda 57

D. C. A. & Co. .....
Daffin Mfg. Co. .....
Dannen Mills, Inc. .....
Davis, H. C., Sons' Mfg. Co.
Dawe's Laboratories, Inc. 77
Day Company, The 36
Daycom, Inc. .....
Delaware Poultry Laboratories
Devold, Peder, Oil Co. 58
Diamond V Mills, Inc. .....
Distillation Products Industries 75, 86
Distillers Feed Research Council .....
Doane Agricultural Service ..
Dorsey Trailers .....
Doty Laboratories .....
Douglas Chemical Co. 83
Duplex Mill & Mfg. Co. 70
Du Pont de Nemours & Co., Inc., E. I. 42, 43

Early & Daniel Co. .....
Eastern Stock Food Co. ....
Eastman Chemical Prod., Inc.
Ehrsam, J. B., & Sons Mfg. Co., The .....
Elam Grain Co. .....
Erlez Mfg. Co. 52
Eschenheimer, Rudy, Co. 70
Eshelman, John W., & Sons..
Ewing, Ray, Co. 82

Farm Journal .....
Farmers Friend Mineral Co... 92
Farmers Mutual Hail Ins. Co. of Iowa .....
Farmers Union Grain Terminal Assn. .....
Feed Service Corp. .....
Fischbein, Dave, Co. .....
Flavor Corp. of America ...3, 88
Food Mach. & Chem. Corp...
Forster Mfg. Co. 79
Fox Co. 78
Fruen Milling Co. 7

Gaddis Bros. Mfg. Co. ....
Geerlings Feed Mills .....
Gerber Sheet Metal 60
Gliddon Co., The .....
Gorton-Pew Fisheries 100
Grace Chemical Co. .....
Grain Processing Corp. 36
Grand River Chem. .....
Griffith Labs., Inc. .....
Gump, B. F., Co. .....

Hallet & Carey Co. .....
Hand, Peter, Foundation 14
Hardy, H. E., & Co. 92
Hardy Salt Co. .....
Harris-Crane, Inc. .....
Harris Lab. .....
Harshaw Chemical Co. ....
Hawthorne Co. .....
Hayes and Stolz .....
Haynie Menhaden Prod., Inc.
Heard-Kinard-Smith, Inc. ....
Heck, Edward J., & Sons Co.
Heil Co., The .....
Helm Manufacturing Co. ....
Henderson Mfg. Co. .....
Henke Mfg. Co. .....
Hercules Powder Co. .....
Hess & Clark, Inc. 53-56
Heterochemical Corp. 87
Highway Equipment Co. ....
Hilltop Laboratories 40
Hoffmann-La Roche, Inc. ....
Hoffman-Taff, Inc. 92
Hogenson Const. Co. 62
Hogg, N. D., Ltd. .....
Holt Products Co. 92
Homer Mfg. Co., Inc., The..
Honeggers' & Co. 104
Honeymead Products Co. 64
Hot Spot Detectors, Inc....40, 41
Howes, S., Co. Inc. .....
Hubbard Milling Co. .....
Hudson Pulp & Paper .....
Hubbell, Charles H. .....
Hygeno Litter Co. 32
Hyline Poultry Farms 85

Ibberson, T. E., Co. .....
Illinois Soy Products Co. ... 47
Industrial Commodity Corp...
International Harvester Co. ..
International Machinery Dev. Corp. .....
International Mfg. Co. 9
International Minerals & Chemical Corp. 37
International Paper Co. .....
International Salt Co., Inc... 67
Interstate Chemical Products.
Iowa Limestone Co. 72
Iowa Portable Mill Co. 47

Jackson, Gilbert, Co., Inc. .. 88
Jacobson Machine Works ... 63
James Mfg. Co. .....
Jefferson Chemical Co. ....
Jersee Co. 13
Johns-Manville .....
Jones-Hettelsater Const. Co...

Kansas Soya Prod. Co., Inc... 68
Kees & Company 47
Kellogg, Spencer, & Sons, Inc. 76
Kem Mfg. Co. .....
Kemp, C. M., Mfg. Co. ....
Kent Feeds .....
Kent, Percy, Bag Co., Inc...
Key Alfalfa Dehydrators .....
Keystone Steel & Wire Co., 32, 33
Kilby Steel Co. .....
Kindstrom-Schmoll Co. 39
Koelsch, Charles J., Grain Co.
Koppers Co., Inc. .....
Kraft Bag Corp. .....
Kraft Foods Co. .....
Kuss, R. L., & Co., Inc.....

Laboratory Construction Co...
LaBudde Feed & Grain Co... 88
Lakeland Eng. Eqpt. Co. ....
Land O'Lakes Creameries, Inc.
Landers Mill Mfg. Co. .....
Lathrop's Hatchery, Inc. ....
Lauhoff Grain Co. .....
Leach Mfg. Co. .....
Leftwich, J. H., & Co., Inc...
LeGear, Dr., Inc. 34
Lennox Industries, Inc. .....
Levens Mfg. Co. 93
Lilly, Eli, & Co. 71
Lima Armature Works .....
Limestone Products Corp. of America 36
Loncala Phosphate Co. 21
Longhorn Eng. Co. .....

McCabe Grain Co., Ltd. ....
McCall, Tom, & Associates, Inc. .....
Magnus, Mabee & Reynard..
Maney Bros. Mill & Elev. Co. 4, 100
Manganese Chemical Corp...
Marco Chemical Co. .....
Martenis, C. J., Grain Co. ..
Matthews Co. 46
Martin, Theo W., & Son 74
Mayo Shell Corp. .....
Merchants Chemical Co., Inc.
Merck & Co. 45
Mid-America Mfg. Co. .....
Mid-Continent Grain Co. 48
Midland Western .....
Midwest Alfalfa Co. 24
Midwest Dried Milk Co. ....
Mill & Elevator Co. .....
Miller Manufacturing Co. ....
Miller, Mel, & Co., Inc. ....
Miller, Publishing Co., The ..
Minneapolis Sewing Mach. Co.
Minnesota Linseed Oil Co. ... 92
Minnesota Specialty Co., Inc. 62
Monsanto Chemical Co. .....
Moores Mfg. Co. .....
Mothmco, Inc. .....
Morton Salt Co. ..7, 14, 34, 52, 59, 62, 72, 82, 90
Murphy Products Co. 73
Myers-Sherman Co. .....

Nagel, Herman, Co. 95
Natl. Alfalfa Dehydrating & Mfg. Co. .....
Natl. Distillers Prod. Co. ...
National Feed Ingred. Assn...
National Lead Co. .....
National Molasses Co. .....
National Randerers Assn. 65
National Turkey Federation Underwriters .....
National Vitamin Products Co.
Nellis Feed Co. 41
New Century Co., The .....
New England By-Prod. Corp.. 100
Nichols Incorporated .....
Nodtbear, H. V., & Co. 95
Nopco Chemical Co. .....
North American Mfg. Co. ....
North American Trading & Import Co. .....
North Carolina Granite Corp. 12
Northwest Brewers Yeast, Inc. 44
Nor-Vell Inc. .....
Nutrena Mills, Inc. 52

Oakes Mfg. Co. .....
Olavarria & Co., Inc. .....
Oyster Shell Corp. 76
Oyster Shell Prod. Co. 70

Pabst Brewing Co. .....
Panogen Co. .....
Paper-Calmenson & Co. ....
Park, Philip R., Inc. .....
Parks, J. P., Co. .....
Parrish & Heimbacker .....
Parrish, N. K. 44
Paxton Processing Co. 95
Pay Way Feed Mills, Inc. ...
Peavey, F. H., & Co. 42
Peerless Equip. Co., Inc. ....
Permco Mfg. Co. .....
Peterson Sales, Inc. .....
Pfizer, Chas., & Co. 50, 51
Phelps Dodge Refining Corp.
Pillsbury Co., The 57
Pittsburgh Plate Glass Co. ..
Pless & Sheahan .....
Power Curve Conveyor Co....
Prater Pulverizer Co. 95
Pratt Labs., Inc. .....
Productive Acres Mfg. Co. .. 74
Publicker Industries, Inc. ... 38

Quaker Oats Co. .....
Quisenberry Mills .....

Ralston Purina Co. .....
Rapids Machinery Co. 93
Raymond Bag Corporation ..
Read, Gladwin A., Co. .....
Red River Alfalfa Co. .....
Red Star Yeast & Prod. Co...
Rees Blow Pipe Mfg. Co. ....
Reliance Feed Co. 60
Rhodia, Inc. .....
Richardson, James, & Sons ...
Richardson Scale Co. .....
Riley Feed Co. .....
Rion Crush Stone Corp. 43
Ripco, Inc. .....
River Rest Turkey Sales, Inc.
Robinson Conveyor Systems..
Rohloff Bros., Inc. .....
Rolfes Grain Aeration Con...
Roskamp Huller Mfg. Co., Inc. 87
Rosner-Hixson Laboratories ..
Ross Machine & Mill Supply..
Ross Mfg. Co. .....
Ryde & Co. 34

S. & H. Lab. .....
S & O Products .....
St. Regis Paper Co. .....
Salsbury's, Dr., Labs. 61
Save-Way Feed Mills .....
Scanlan, Ivan, & Co. 57
Schenley Distillers, Inc. 29
Schuster-Wise Gr. & Feed Co.
Schutte Pulverizer Co., Inc...
Screw Conveyor Corp. 44
Scroggins Grain Co. 58
Seagram, Joseph E., & Sons, Inc. .....
Seco, Inc. .....
Sedberry, J. B. 89
Seedburo Equipment Co. 62
Service Bureau Corp. .....
Sheahan, Robert F. .....
Shell Chemical Co. .....
Shellbuilder Co. 52
Shuford, J. C. 24
Sievert, C. W., & Associates 20
Simonsen Mfg. Co. 62
Sioux Products .....
Small, The W. J., Co. 4
Smith, A. O. .....
Smith, Edward E., & Co. ....
Soft Phosphate Research Inst. 35
Sohio Chemical Co. .....
Soluble Nutrients, Inc. .....
Southwest Mill Supply Co. .. 95
Sparks-Waters-Farnen, Inc. ..
Special Products, Inc. .....
Specifide, Inc. 48
Spencer Kellogg & Sons, Inc. 76
Sprout, Waldron & Co., ...12, 13
Squibb, E. R., & Sons .....
Stabilized Vitamins, Inc. ....
Staley, A. E., Mfg. Co. ....
Staley Milling Co. .....
Standard Brands, Inc. 69
Standard Feed & Fert., Inc...
Stauffer Chemical Co. .....
Stearns Magnetic Products ..
Stephens-Adamson Mfg. Co...
Sterwin Chemicals Inc. .....
Stone Mountain Grit Co. ....
Strong-Scott Mfg. Co. .....
Sudenga Industries 43
Sunset Feed & Grain Co. ..
Superior Feed Co. 69
Superweet Feeds 9
Swanson, Carroll, Sales Co... 69
Swift & Co. .....
Syntha Lab. 40

T. D. F. Company .....
Taste Engineering, Inc. .....
Texas Mill Equipment Co. ...
Thayer Scale Corp. .....
Thomer Equipment Co. .....
Thompson Printing Co. .....
Ti-Co Industries .....
Tobias Enterprises 74
Toxite Laboratories .....
Truck Grain Blower Co. ....

Ultra-Life Laboratories, Inc... 42
Union Bag-Camp Paper Corp.
Union Special Machine Co... 72
U. S. Industrial Chem. Co. ..
Universal Hoist Co. .....
Upjohn Company, The .....

Van Dusen Harrington Co. ... 42
Ventress, Chas., Farms, Inc...
Vitamins, Inc. 64
Vitaway Inc. .....
Vitren Corp. 95
Vy Lactos Laboratories Inc.. 16

W-W Grinder Corporation .. 58
Wallace & Tiernan Inc. .....
Warren-Douglas Chemical Co. 21
Wells, Ralph, & Co. 66
Wenger Mixer Mfg. Co. 18
Wertz Feed Co. 93
Western Condensing Co. 49
Western Yeast Co. .....
West Virginia Pulp & Paper Co. .....
White Laboratories, Inc. ...25-28
White Shell Corp. .....
Whitmoyer Laboratories, Inc. 78
Whitten Co. .....
Wilhoit Laboratory 60
Wilson & Co., Inc. .....
Wilson, R. S., Co. 82
Wirthmore Feeds .....
Wisconsin Alumni Research Foundation 81
Wooodward & Dickerson, Inc.

Younglove Construction Co...
Young, John F., Co. .....

Zellers' Laboratories .....

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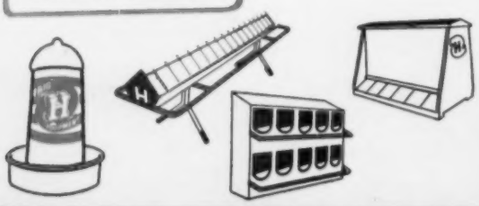

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